

Chemical Week

March 22, 1952

Price 35 cents



Big, bustling, booming; here's what's happening in the still a-building Southwest p. 13

◀ **Rep. Joe Martin; his plaint: illegal "super-cartel" robs us of needed chemicals, metals . p. 16**

What makes U. S. research tick: MSA dissects how we organize, run, pay for it p. 39

◀ **Wyandotte's Gerlach: spearheads new insecticide venture; goal: hefty sales to industry . . . p. 57**

Sharp shift in production worries: equipment, materials ease; labor unrest stymies planning . . p. 59

In the spotlight...

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Chemical Week

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March 22, 1952 • Chemical Week

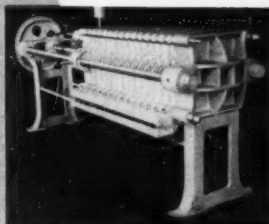
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OPINION

Interpreting Evaluation

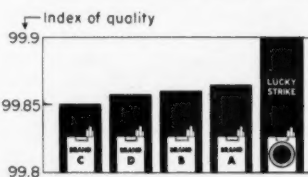
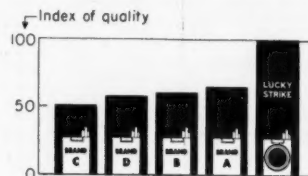
TO THE EDITOR: You have certainly done a fine job of interpreting Virginia-Carolina's Vicara evaluation program in your article "The Long Run Pays" (Mar. 1) . . .

Your reporting is excellent and accurate . . . we appreciate your interest . . .

R. CLIFTON LONG
Virginia-Carolina Chemical Corp.
Richmond, Va.

Consider three of many possible differences of interpretation (see attached tracing) . . .

P. R. LESTER
Mineola, N. Y.



A shrewd observation, Reader Lester, and a point we overlooked. Says Consultant Snell: Each of the ten "quality factors" is given a rating of ten. Total "percentage" scores: Luckies, 84.21; A, 55.76; B, 51.97; D, 50.82; C, 44.17. —Ed.

It's Seasonal

TO THE EDITOR: I have read your controversial article covering the St. Lawrence Seaway (Feb. 16). This subject has been excellently treated, and I heartily concur in what you have written.

There is one point of interest which has not been covered; namely, the Seaway would be closed down due to weather conditions for five months of the year, which is a very strong reason for not building it.

D. G. WARD
Director of Transportation
Mathieson Chemical Corp.
Baltimore, Md.

Nonce Word

TO THE EDITOR: What's wrong with my dictionary?—or perhaps I should ask, What's wrong with you? You headed a letter "Paleophile" in your Jan. 26 issue, and I can't find it in my Webster's Unabridged . . .

J. S. CROFFETT
Newark, N. J.

Let Reader Croffett not lose faith in his dictionary. Too pressed for time to seek out a standard word meaning the same thing, we simply took two Greek roots—"paleo" (primitive, archaic) and "-phile" (one having a fondness for)—and put them together. Hence it is a "nonce word," which your Webster defines as "a word formed and used for one occasion." —Ed.

To Second Decimal

TO THE EDITOR: Read your excellent article "Firm, Round Packed" discussing "tobacco chemistry" with considerable interest. . . .

It did not, however, bring out one point: The Lucky Strike chart is meaningless . . . or even deliberately misleading . . . because it has no units. It looks wonderful but it isn't necessarily so. . . .

Washington Guides

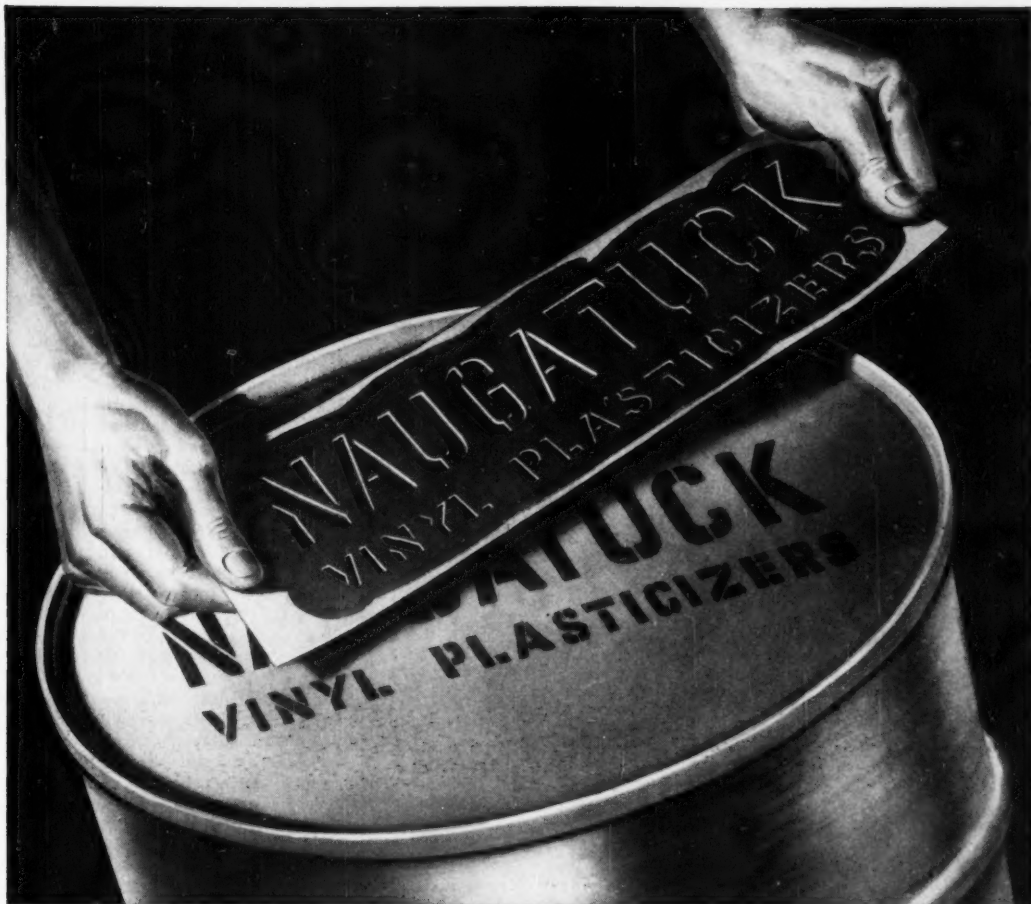
TO THE EDITOR: Many thanks for that NPA directory, "Who to See in Washington," (Jan. 19). How about one on OPS? . . .

M. JULIUS KLEIN
New York, N. Y.

Already in type, Reader Klein (see page 18). Any other guidelist suggestions?—Ed.

Battling Nature

TO THE EDITOR: . . . I was greatly interested in both your story about Krilium (Jan. 5) and the letter by Dr. W. Grussendorf (Jan. 26). Like Leonard Wickenden, author of "Make Friends with Your Land," Dr. Grussendorf is an agricultural chemist who has realized that the laws which are followed by living bodies—and the soil is one of them—are qualitatively different from the laws of physics and chemistry. J. S. Haldane, in his book "The Philosophical Basis of Biology" goes even further in saying that although we may be able to interpret



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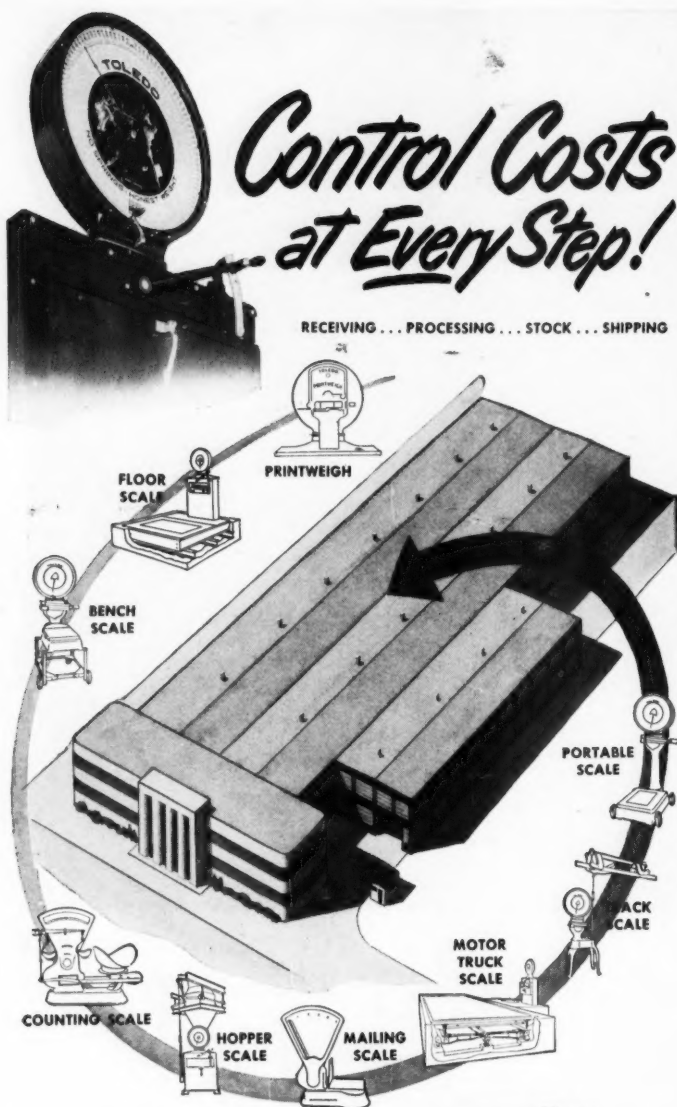
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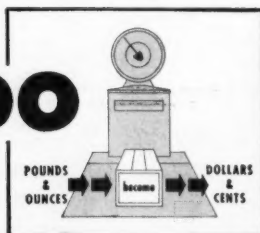


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OPINION

laws of physics and chemistry in terms of those of biology, it cannot be done vice versa.

Before Einstein, physics was content to predict phenomena of appearances. But since Einstein, and all that goes with the philosophical advances since then, Haldane seems to have been proved right.

Chemistry still has to learn this fundamental truth, however. And with its discovery will learn to work with nature, and not against her.

Krilium may have an important place in enabling some vegetation to grow where none grew before. . . . But once we have some natural material with which to improve soil fertility, or on land where there is some vegetation established, proper conservation practices should be encouraged first. . . .

We can improve, by organic farming, almost any kind of worn-out soil. And such improvement is permanent as long as we practice these farming methods. In spite of the removal of heavy crops, and without the addition of any chemical fertilizers, soils on all-organic farms have steadily increased their fertility, in contrast with other farms where more and more chemicals and poison sprays have to be used every year, and still output can hardly be maintained.

At Rothamsted, the famous chemical farm research station, yields of barley have dropped from 53.3 bu. per acre to 20.0 bu. per acre in twenty-five years, in spite of all chemicals. And production of wheat, at the same station, can only be maintained by bringing in new fresh seed from the outside every year. . . .

This brings us to quality. What is the disease resistance, reproductive ability, and general stamina of crops grown in Krilium soils? We know that crops from soils rich in humus have a high disease resistance. . . .

It is obvious that Krilium can do nothing to feed the saprophytic bacteria which in turn control pathogens in the soil. For an interesting cure, with humus, of an "incurable" strawberry disease, Red Steele, see the current issue of *The Land* (Vol. X, No. 4). . . .

H. E. LOBSTEIN
Bloomingburg, N. Y.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

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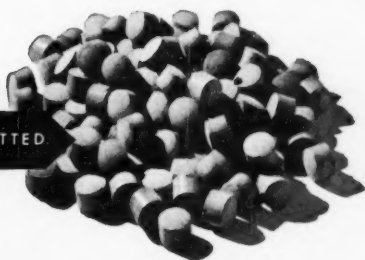


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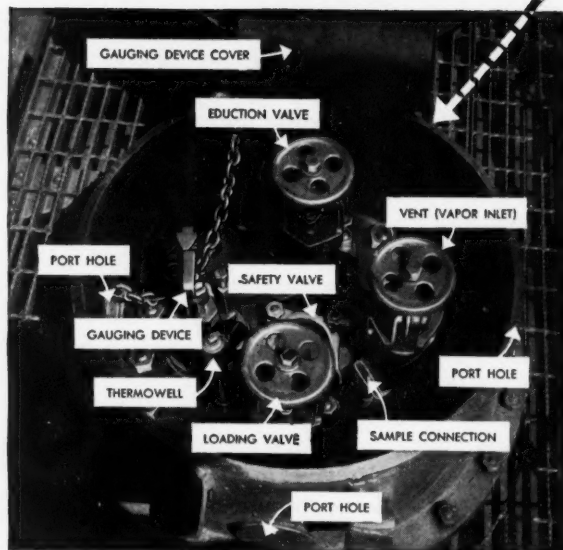
Today, more than ever, chemical materials should be used wisely and efficiently. The importance of Ethylene Oxide and Propylene Oxide to many industries has led Dow to believe that the following information may be of assistance in helping you realize greater value from these oxides.

Practically every major industry uses Ethylene Oxide or one of its many derivatives. Because Ethylene Oxide reacts with many other chemicals including fatty acids, phenols, alcohols and water, it is a basic component in many products. Ethylene Oxide is used in the manufacture of detergents . . . permanent antifreeze . . . cosmetics and bread conditioners. Propylene Oxide reacts with acids to form esters and with phenols to form phenoxy alcohols. In addition to the use of Propylene Oxide as an intermediate, it may be used as a low boiling solvent for cellulose acetate, nitrocellulose, vinyl resins, natural resins, hydrocarbons and as a sterilizing agent or product to inhibit the action of yeasts and molds.

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PROPERTIES

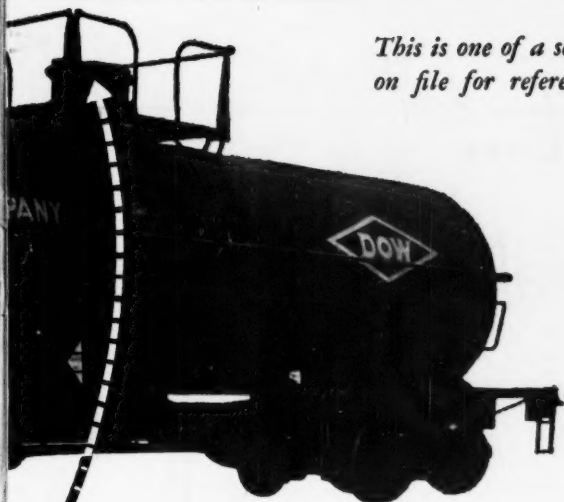
	Ethylene Oxide	Propylene Oxide
Molecular Weight	44.0	58.1
Boiling Point	51.3°F.	95.0°F.
Freezing Point	-168.2°F.	-169.6°F.
Flash Point (TAG Open Cup)	below -4.0°F.	below -21.0°F.
Fire Point (TAG Open Cup)	below -4.0°F.	below -21.0°F.
Specific Heat, Btu/(lb) (°F.)	0.44	0.47
Heat of Vaporization (1Atm), Btu/lb.	245.0	213.2
Density, g/cc.	0.896 ^{32°F}	0.827 ^{68°F}
Refractive Index	1.3614 ^{39.2°F}	1.36377°F
Explosive Limits (% Volume in Air)	2—100	2.1—21.5
Water Solubility, g/100g at 77°F.	∞	59
Alcohol Solubility	∞	∞
Ether Solubility	100	∞



Unloading Tank Cars of Ethylene Oxide or Propylene Oxide

1. The tank car should be accurately spotted on level track, the brakes applied, wheels blocked and appropriate caution signs displayed.
2. Attach approved ground connections to tank car before any contact is made with unloading equipment.
3. Attach inert gas line to vent valve of tank car and attach unloading line to eduction valve. Attach pressure gauge to loading valve. (These lines should be flexible steel with steel fittings. Wrenches and other tools used around Ethylene or Propylene Oxide should be made of nonsparking metals.)
4. Open loading valve to activate pressure gauge.
5. Open vent valve slowly and apply inert gas pressure to car to force Oxide into pump suction and to keep vapor phase of

This is one of a series of Dow advertisements you may wish to keep on file for reference and information. Write Dow for reprints.



Unloading Tank Cars (Cont'd)

tank car out of flammable range. A rotary pump is recommended for transfer of these materials.

6. When sufficient pressure has built up (about 35 psig) open eduction valve. This valve must be opened slowly so that excess flow check valve does not close.
7. Vent storage tank into which the Oxide is being pumped back into the tank car through the inert gas line. (The attachment of this vent line to the inert gas line must be made downstream from the compressor.)
8. When tank car has been unloaded, close valves and detach unloading lines. Care should be taken to allow no air to enter tank car. The car, containing principally inert gas, is then ready for return to Dow.

Handling Precautions:

Ethylene Oxide and Propylene Oxide are similar in many respects. Generally speaking, Ethylene Oxide is more reactive and more toxic than Propylene Oxide; however, the same general precautions should be applied to handling and working with both these chemicals. Ethylene Oxide and Propylene Oxide are highly flammable and highly reactive. Every precaution should be taken in handling these materials to avoid any source of ignition. Explosion-proof motors and other electrical equipment including pumps, piping, storage tanks, and compressors should be well grounded.

No copper or copper-base alloys or any other acetylide forming metals should be used in contact with Ethylene Oxide or Propylene Oxide. All equipment used should

be free of acids, bases, salts and water since most of these act as polycondensation catalysts. Oils, grease, dirt, air, sulfur, ammonia and hydrogen sulfide should also be excluded from contact with Ethylene Oxide and Propylene Oxide.

All new equipment or equipment which has been out of service should be thoroughly cleaned, dried and purged with an inert gas (i.e. Nitrogen or Methane) before being put into Ethylene Oxide or Propylene Oxide service. A blanket of inert gas should be kept on the Oxides to keep the vapor phase out of the flammable range.

Ordinary steel is acceptable for storage tanks and pipe lines. This equipment should be constructed to withstand an operating pressure of at least 50 psi. and should be insulated and provided with proper cooling equipment.

Toxicity:

Ethylene and Propylene Oxides should be considered hazardous chemicals in both their liquid and vapor forms. The prolonged single exposure to gas concentrations of but a few hundred parts per million can have adverse effects, and regular daily exposure to low concentrations should be avoided. The principal toxic effect resulting from inhalation is thought to be an irritation of the lungs which may produce, after several hours, inflammation and tissue destruction leading to pneumonia.

The following symptoms should be taken as evidence of excessive exposure: irritation of the eyes, nose and throat, headache, nausea, vomiting and weakness.

For emergency protection a full face gas mask with canister for organic vapors, or an air supplied respirator are suitable.

In the event of exposure, the casualty should be immediately removed from further exposure and placed under medical care. If liquid Ethylene Oxide or Propylene Oxide is spilled upon the person, all contaminated clothing should be removed at once and the affected area washed for several minutes with running water. Prolonged contact with the skin can cause severe blistering.

It is recommended that anyone who may be subject to exposure to Ethylene Oxide or Propylene Oxide be equipped with face shield, rubber gloves and other protective clothing.

WRITE DOW FOR INFORMATION AND TECHNICAL ASSISTANCE.

The Dow Chemical Company, Dept. OC-25A,
Midland, Michigan

☐ Please send me additional information about Ethylene Oxide and Propylene Oxide.

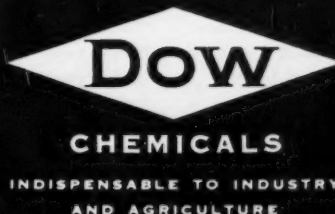
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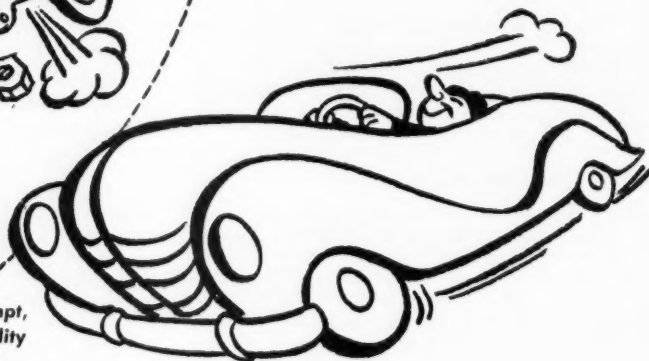
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NEWSLETTER

You shouldn't mix business with Millers. Salesmen were miffed at Playwright Arthur Miller's "Death of a Salesman," and the pharmaceutical industry is disturbed by the implications of Playwright Sigmund Miller's "One Bright Day," which opened in New York this week.

The plot concerns a pharmaceutical maker whose product—already in countless medicine cabinets—turns out to be toxic under certain conditions. The humanitarians, including the company president, eventually win out over the "public be damned" commercialists.

Virtue triumphs, but—and here's the rub—only by the narrowest squeak. The playgoer may easily conclude that the drug firm behind the footlights isn't really very different from the one that actually compounds his pills—and that's a dangerous stretch of artistic license.

No fiction is the petroleum industry's concern over threatened amendments to its present depletion tax allowances—"loopholes" according to some Congressional critics.

Higher oil company profits last year in the face of a general profit downturn give the critics potent ammunition. After Congressmen get a chance to digest Standard Oil of Jersey's report—which shows a hefty percentage jump over 1950's \$219 million net—they may be more disposed to consider changes in the present tax structure.

Fourteen process industries expansions of over \$1 million—and ranging up to \$24.6 million—are among the latest certified facilities. Ammonia got the largest share; the companies: Cooperative Farm Chemicals, Allied Chemical & Dye, Deere, Sid Richardson, Pacific Chemical, W. R. Grace, National Chemical, and Delta Chemical.

The others: Dow (salicylic acid, benzene), Du Pont (polyethylene, dyes), Salt Lake Refining (cumene for phenol), Standard of Calif. (phenol), Squibb (antibiotics), American Cyanamid (dyes), and Ciba (military chemicals).

Still another certificate, while not outstanding dollar-wise, significantly reveals Monsanto Chemical's diversification plans: intermediates for chloramphenicol, at Monsanto, Ill., from facilities costing \$358,000.

Hormones are also on Monsanto's agenda. Certification has been asked for a plant—location still unspecified—to make cortisone, on which the company has been working in collaboration with Harvard researchers.

More squeal from the pig is the aim of a new petroleum coking process, first commercial embodiment of which is due to operate in April.

It's called contact coking. It's continuous, yields more gas, more gasoline of better octane number, more gas oil—but less coke.

Shamrock Oil & Gas Co. (no kin to Glenn McCarthy's Shamrock) is building the unit at Sunray, Texas.

Here's a change in TVA's chemical setup: Its operations, including the experimental fertilizer laboratory and the munitions plant at Muscle Shoals, will now be run by the Office of Chemical Engineering.

The Division of Chemical Engineering is being abolished, and two divisions—development and operations—are being set up in the new Office. The former division will have branches for research, development, and de-

sign. The latter division will be divided into nitrate operations and phosphate operations.

A new chemical lure for the farmer's dollar is the use of aldrin as a soil insecticide. Plowed into the soil with fertilizer, aldrin kills subterranean insects that destroy roots of crops.

The U. S. Department of Agriculture has approved the method.

But fluoridation of drinking water continues to be met with mixed emotions. Seattle just turned down a fluoridation proposal by a vote of almost two to one. For it: the city's health director, the PTA, the local dental, medical and dietetics societies. Against it: some individual doctors and dentists, the National Nutritional League, and the Northwest Citizens Committee Against Fluoridation—supported by many Christian Scientists who were opposed on religious grounds.

Cleveland, on the other hand, was set to open bids next week for dry-feed machines to introduce fluorides (a pound to a million gallons) into the municipal water supply.

A new sulfur process for low-grade ores will be tried out by Continental Sulphur & Phosphates Corp. Claim: A 200-ton plant would cost only \$175,000, throughput cost per ton would not exceed \$5.50.

Titanium's in the news: High Navy circles confirm that the Horizon-Ferro titanium process (CW Newsletters, July 7, July 14, '51) will produce the metal at about a third the cost of any methods now in use or under test.

"The rocky road of OPS administration" has led to "profit control" rather than "price control," contended Diamond Alkali's John A. Sargent, appearing on behalf of the Manufacturing Chemists' Association at Senate committee hearings on extension of the Defense Production Act.

MCA is one of 64 groups—out of more than a hundred that wanted to be heard—scheduled to appear. All businessmen are asking for decontrol, differing only on timing and method.

Sargent recommended one-year extension only, amendments to permit prices to reflect higher costs, quickest possible decontrol on individual commodities without waiting for general decontrol.

The Chemical Corps is a quarter-billion dollar customer. During fiscal 1951 its 30,000 purchases amounted to \$230 million; and this year the Corps will spend about \$300 million with private industry.

"Small business" gets 77% of the contracts, says the Corps.

But the military is also a competitor for industry's technical talent—so much so that the American Chemical Society this week set up a 16-man Committee on Manpower to study chemical manpower needs and formulate a program (1) to improve efficiency of manpower use; (2) to make Selective Service more selective; (3) to revamp the reserve setup; and (4) to encourage more young people to study chemistry and chemical engineering.

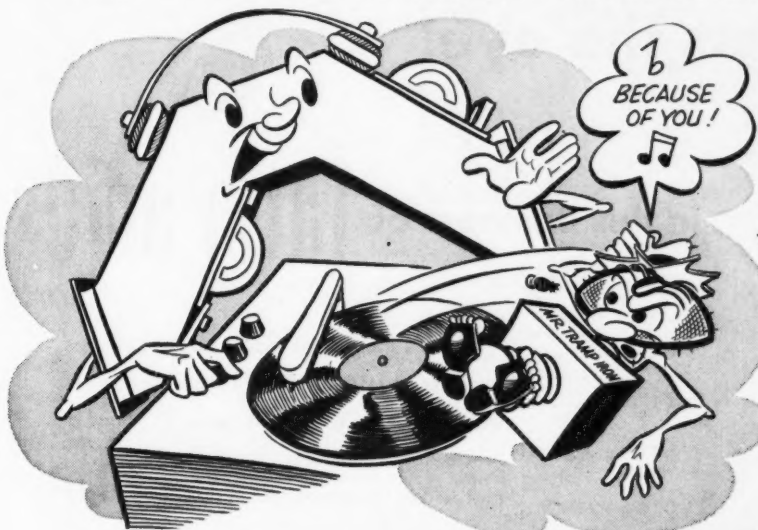
Heading up the Committee: Rohm & Haas' Ralph A. Connor.

Latest twist in the tobacco humectant hassle: Liggett & Myers now brags that Chesterfields "contains pure sugars and more costly glycerol"—a sideswipe at Philip Morris' claims for diethylene glycol.

. . . The Editors

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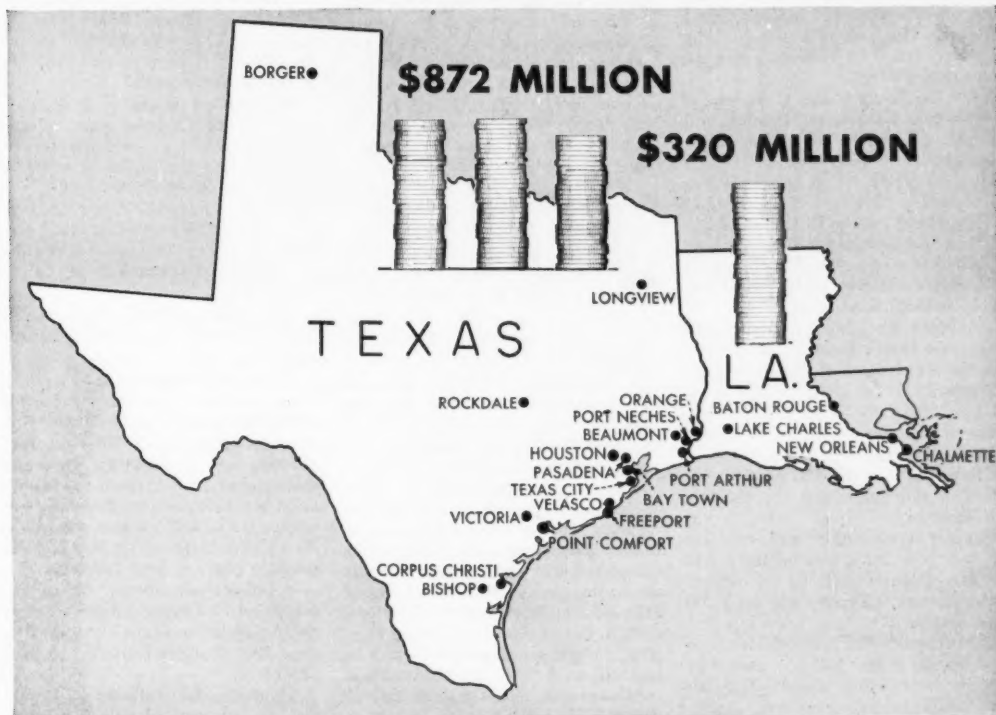
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GULF COAST: Over a billion dollars for a chemical dreamland.

New Boom Along the Gulf

Texans are piling up arguments for calling Houston the chemical capital* of the world: Current expansion projects in that state total \$872 million.

Louisiana too is sharing the Gulf boom: \$320 million is going into new or expanded capacity.

Aluminum is the biggest, but substantial boosts for organics, heavy chemicals, sulfur, carbon black, salt and synthetic rubber are under way.

Tell a chemical engineer he's in heaven and ask him to describe the type of location he'd order if he were building a giant chemical industry. The odds are 10 to 1 he'll come up with a place that sounds a lot like Texas.

For along the Gulf Coast are almost limitless resources of key materials for a dream chemical empire: salt, lime, sulfur, carbon, hydrogen. Natural gas, which provides cheap hydrocarbons for organic chemicals

synthesis, is also a source of heat for low-cost steam and electrical power. There's even deep water transportation to big consuming areas. And the chemical process industries in the region are themselves ready customers for many chemicals; the area also consumes fertilizers, insecticides.

* Chemical Industries in a story on Southwest chemical expansion in March, 1947, reported that \$300 million had been invested since V-J Day—on top of a wartime \$1 billion investment. It also reported Texas oilmen's claiming this title for Houston.

These natural endowments virtually made Houston the chemical capital of the world following World War II—at least in Texan eyes—and it looks as though the chemical industry has acquiesced. In Texas alone, expansion projects, new plants under construction and those on drafting boards total \$871,770,000.

But the Texas "big" fever is catching. Louisiana too is proving a powerful magnet for chemical investment. There new construction has reached an all-time high of \$319,643,000.

This \$1,191,413,000 total includes plants for heavy chemicals, alumina, aluminum, synthetic rubber, carbon black, salt, sulfur and facilities of petroleum refineries and pulp and paper mills that produce chemicals.

Aluminum the Biggest: In dollar value, \$400 million, aluminum plants are among the leaders. Alcoa at Point Comfort, Tex., is adding two new pot lines (cost: \$15 million) to three already in existence, raising plant capac-

ity from 114 million to about 185 million pounds of aluminum annually.

At Rockdale, Tex., the first unit of a four pot line plant should be ready for operation in October. The plant (cost: \$80 million) is expected to be in full production by mid-1953, turning out an estimated 170 million pounds a year. This project is novel in that lignite will be used to generate electrical power.

On the banks of the Mississippi at Chalmette, La., Kaiser Aluminum & Chemical is constructing "the largest aluminum reduction plant in the U.S." The plant, with an annual output of 400 million pounds, is being built in two units of four pot lines each. The first is nearing completion; construction has started on the second. Target completion date of the project (cost: \$145 million) is mid-1953.

Alumina for Chalmette operations will come from a Kaiser plant at Baton Rouge which itself is undergoing expansion (\$22.5 million). Output is being boosted 60% to produce 800,000 tons of alumina a year to supply all the Kaiser reduction plants.

Reynolds Metals' \$80 million San Particio aluminum reduction plant at Gregory, near Corpus Christi, is just getting into production. A site adjacent to it is now being cleared for a \$42 million alumina plant to be finished next January. Capacity will be 1,000 tons a day.

Everybody's In: Though facilities for boosting the nation's aluminum supply overshadow construction for any other single commodity, expansions for a wide variety of organic and inorganic chemicals are still big enough to impress even a Texan. Virtually every "name" chemical company is in on the current boom, either as a newcomer or as an established producer boosting his stake in the area. Following is an up-to-date box score on individual projects:

• **Dow at Freeport and Velasco.** This is the largest single plant layout along the coast between the Mississippi and Rio Grande. Certificates of necessity for about \$100 million covering facilities for chlorine-caustic, ethylene, styrene, ammonia, ethylene dibromide, magnesium and other materials have been issued.

• **Carbide at Texas City.** Following parent company Union Carbide's arrangement for \$300 million long-term financing, expansion of Carbide's Texas City plant was rumored. Lending weight to such speculation were applications for \$134 million in rapid tax write-offs; six (of seven) named the Texas City plant, totaled \$60,285,000. The seventh, for \$73,663,000, only

specified Texas. So a vast project is in the cards. And Carbide is about to start building a 50 million pound-a-year polyethylene plant at Texas City; it's set for completion early next year.

• **Monsanto at Texas City.** Principal product of program more than doubling present plant will be acrylonitrile (50 million pounds a year). A \$30 million acrylonitrile unit should be completed in late 1952. An \$8.6 million styrene unit, due in before this July, will double present styrene capacity. Also scheduled to come on stream in third quarter of this year is a 100-million-pound-per-year vinyl chloride installation (\$7.34 million certificate of necessity).

• **Texas City Chemicals.** New company formed to produce 300 tons of sulfuric acid per day and dicalcium phosphate. A \$4.5 million plant planned; land bought but construction not yet begun.

• **Du Pont.** Company has acquired 600 acres on Neches River near McFaddin's Bend, between Beaumont and Port Neches, for "multiple products" plant. Principal product believed to be tetraethyl lead initially.

Du Pont's new adiponitrile plant at Victoria, Tex. is being doubled to 50 million pounds a year. Construction completed; company hopes to be in production by April 1. Doubling of Sabine River Works polyethylene production begun a year ago, being completed stepwise. Major part won't be finished until 1953. \$10.293 million certificate was recently granted.

• **Diamond Alkali at Houston.** Two plants undergoing huge expansions: alkali plant on south side of Ship Channel at Deer Park; Kolker Chemical Division's insecticide plant across channel. Much of additional chlorine output (50% increase) is for Kolker plant and neighboring Shell.

A new \$1.5-2 million organic chemicals unit will be in this year. Products: resins, perchlorethylene, other chlorinated products. Shell will supply ethylene; Diamond will convert it to ethylene dichloride; Shell will convert it to vinyl chloride; Diamond will then convert its share to polyvinyl chloride.

Among new Kolker units is a \$1 million lindane plant.

• **Shell Chemical at Houston.** Will pool Deer Park resources with Diamond to produce vinyl chloride. Also Shell is building \$500,000 unit to recover sulfur (15,000 T/year) from waste refinery gases. Installations boosting glycerine output 50%, ethyl chloride 30%, have been completed.

• **Mathieson.** \$3.150 million hydrazine plant at Lake Charles under con-

struction, expected to be completed before year's end.

• **Ethyl Corp. near Houston.** This \$45 million integrated unit on 400-acre site will have a capacity of 90 million pounds, should go on stream during the second quarter of this year. Like Ethyl's Baton Rouge plant, it will make TEL, lead chloride, sodium, chlorine and ethylene dichloride for antiknock compounds.

• **Celanese.** Expansion projects under way at Chemcel plant, Bishop (\$3.4 million tax certificate benefit) and at research laboratories at Clarkwood, near Corpus Christi (\$400,000). Products: paraformaldehyde, trioxane, Formcel. Also company building new "organic chemicals" plant at Pampa, near Amarillo, scheduled for completion in June.

• **Koppers at Port Arthur.** \$6 million ethyl benzene plant to be finished early next year.

• **Texas Eastman at Longview.** This Eastman Kodak subsidiary in January started up several units of its petrochemical plant on 2,400-acre tract. Among first products to be made: ethanol, butyl aldehyde, acetaldehyde, ethyl hexyl alcohols, isopropyl alcohol, acetic acid and acetic anhydride. Humble Oil is piping propane from its gasoline plant at New London.

• **Columbia-Southern.** \$8 million expansion at Corpus Christi plant to double chlorine-caustic output, produce two new products for oil well drilling muds.

• **Commercial Solvents.** \$20 million program will double company's Sterlington, La. ammonia and methanol output. Construction on units, to operate on natural gas, will be started immediately, should be finished in about a year. In addition, new ammonium nitrate unit will be built.

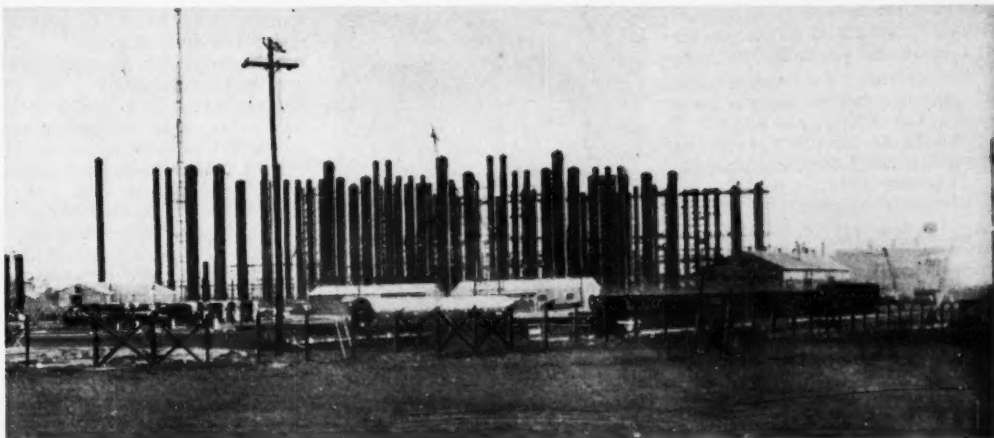
• **Davison Chemical.** \$7.142 million petroleum catalyst plant near Lake Charles under construction.

• **Bay Chemical.** This subsidiary of Morton Salt constructing at Weeks, La. plant to make catalyst for high octane gasoline by new process.

• **Consolidated Chemical Industries.** \$500,000 plant to recover sulphur from waste gases of Esso Standard's Baton Rouge plant recently went into operation. Now \$3.5 million sulfur plant (400 T/day) using acid sludge from Gulf Coast refineries being built on company's Baton Rouge site; will be largest regeneration plant in the world.

• **Sid Richardson Gasoline Co.** 25T/day plant recovering sulfur from sour gas at Winkler, Tex. now in operation.

• **Phillips Petroleum.** Company will



Toward the H-Bomb

FIRST PICTURE OF ACTUAL CONSTRUCTION on the Atomic Energy Commission's Savannah River, S. C., facilities was snapped from the window of a train passing a half-mile from the site, and later approved by the AEC for publication. Barbed wire, foreground, keeps out unauthorized personnel. Several towns were relocated, and better than a thousand persons moved—including Ellenton's Hattie Badger (CW, Mar. 15)—to clear the 202,000 acre reservation.

start up 120T/day sulfur plant at Goldsmith, Tex. early this year.

- **Shamrock Gas.** 32T/day sulfur recovery plant at Pampa, Tex. now finished.

- **Shell Oil.** 50T/day sulfur recovery plant at its Houston refinery to be operating in mid-year.

- **Gulf Oil.** Company has let contract for 300T/day sulfuric acid plant at Port Arthur refinery. Contact plant will also include facilities for recovering sulfur from acid sludge.

- **Texas Gulf Sulphur.** Plant at Spindle Top sulfur deposit near Beaumont just completed.

- **Freeport Sulphur.** \$10-15 million Garden Island Bay development in Mississippi Delta to produce 500,000 long tons of sulfur a year by end of 1953. Another—much smaller—project 38 miles south of Houma, La. of undetermined output will be in by end of 1952.

- **Jefferson Lake Sulphur.** Starks Dome near Louisiana-Texas line beginning operations; big production not expected.

- **Cabot Carbon.** \$4 million plant being built at Bayou Sale, St. Mary's Parish, La. One unit, thermal black plant using natural gas, will have 30 million pound-per-year output. Adjoining oil furnace carbon black plant using petroleum byproducts will have annual capacity of 50 million pounds.

- **Continental Oil Black.** New \$1.5 million plant at Lake Charles turning out high abrasion black; annual capacity expected to be 20-25 million pounds.

- **Great Lakes Carbon.** Port Arthur plant being expanded with calcined petroleum coke kilns for use in alumina reduction.

- **J. M. Huber.** Second unit now in operation at plant near Baytown; both (cost: \$3 million) have combined capacity of 72 million pounds of HAF type black annually.

- **United Carbon.** \$2.3 million black plant under construction near Louisa, in St. Mary's Parish, La.

- **Shell Oil.** Units for 450,000 bbl. benzene, 800,000 bbl. toluene per year (total cost: \$12.33 million) to start shortly at Deer Park. At Norco refinery, near New Orleans, \$30 million expansion program.

- **Gulf Oil.** Giant fluid cat cracker at Port Arthur just finished makes plant one of largest refineries in the U.S. Also building at Port Arthur isooctyl alcohol unit (\$700,000), ethylene plant (\$15.5 million). New polymerization plant will make high-octane gas from propylene, polymers for chemical synthesis.

- **Esso Standard.** \$35 million expansion at Baton Rouge refinery under way includes facilities for avgas, butadiene, alcohols, benzene; completion date about January, 1954.

- **Taylor Refining.** Granted certificate of necessity totaling \$3.755 million for benzene, toluene, at Corpus Christi.

- **Great Southern Chemical.** \$4 million certificate granted for benzene, toluene units at Corpus Christi.

- **Republic Oil Refining.** \$7 million expansion project at Texas City refinery just started, includes 6,500 bb./day platforming unit.

- **Continental Oil.** Lake Charles refinery being enlarged (\$24 million), completion set for late 1952.

- **Cities Service.** Spending \$26.65 million to expand Lake Charles refinery for avgas.

- **Magnolia Petroleum.** Thermoform catalytic reforming unit to go in at Beaumont refinery.

- **Pure Oil.** Enlarging Smith Bluff refinery (cost: \$12-15 million).

- **Sinclair Refining.** \$28 million expansion at its Houston Ship Channel refinery will bring almost 100% increase in various kinds of gasoline, butylene for rubber. Will be completed in fall of 1953.

- **Pan American Refining.** Texas City refinery undergoing \$8 million expansion. Also construction soon to start on 30,000 bbl. fluid cat cracker (certificate for \$19.432 million).

- **Texas City Refining.** Modernization program costing \$3 million will take a year to complete.

Synthetic Rubber: Synthetic rubber plants in the area are converting part of facilities over to oil-extended cold rubber:

- **B. F. Goodrich Chemical Co.** Plans to convert one-fourth of RFC plant at Port Neches to new type cold rubber (7,500T/month).

- **General Tire & Rubber.** RFC Baytown plant has begun production of the modified type, and facilities have been installed to produce all oil-extended rubber.

- **U.S. Rubber.** RFC Port Neches

plant it operates will complete conversion (cost: \$2-2.5 million) in the fall; production will be 88,000T/year.

- **Copolymer, Firestone, Phillips.** Converting respective plants at Baton Rouge, Lake Charles and Borger.

Still To Be Started: A number of companies has Gulf Coast plants in the planning stage, but work has not yet begun. A rundown:

- **Heyden.** \$12 million plant at Houston Ship Channel at Pasadena for methanol, other products.

- **Cyanamid.** Company has option on site on Mississippi near New Orleans for \$47.745 million "nitrogen" (presumably acrylonitrile) plant.

- **Phillips.** \$38 million anhydrous ammonia-methanol plant on 495-acre tract adjoining present plant on Ship Channel; capacity about 400 tons of ammonia a day.

- **Reichhold.** \$5 million phenol unit on Ship Channel adjacent to Diamond plant.

- **Allied.** Solvay Process Division has bought 650 acres at Orange for ethylene glycol and ethylene oxide plant using ethylene piped from Gulf Oil's Port Arthur refinery. Initial unit to cost over \$5 million; further installations will be added.

- **American Petrochemical.** This new company jointly owned by Cities Service and Firestone will build \$15-20 million plant near Lake Charles, La. to process light hydrocarbons from adjacent Cities Service refinery. First product to be ethylene; but ultimately broad range of plastics, synthetic rubber, lube additives, cracking catalysts, high-volume petrochemicals planned.

The Heat's on IMC

The International Materials Conference, top policy group on worldwide allocation of strategic commodities, is in hot water this week. The sovereignty of Congress is being challenged. Republican congressmen assert, by this "super-cartel," since it was set up without specific legislative approval. On one side of the fence are 70-odd Republican Congressmen headed by minority leader Joe Martin, and a segment of the American mineral industry.

On the other, executive Government agencies including the State Department, Defense Production Administration, and, of course, IMC itself. Their position, as stated by DP Administrator Manly Fleischmann: A "grand alliance" with other free nations is essential to share scarce materials.

IMC's concern for the past 14 months has been over 14 commodities



IMC's TICOULAT: Best balance on material allotments?

—sulfur, copper, zinc, lead, tungsten, molybdenum, manganese, nickel, cobalt, pulp, paper, wool, cotton and cotton linters. The group got its start in late 1950, when commodity shortages caused by the Korean war were beginning to pinch.

The State Department negotiated with Britain and France on the idea, but now membership represents 28 free nations. State's "authority" for the negotiations is its jurisdiction over foreign relations.

Plaintiffs: Those who question the legality of the organization rally around Representative Martin, who, in the course of his investigation, drew an admission from the State Department that there is "no specific statutory authority for participation in the conference."

Before Martin took up the torch, Sen. Homer Ferguson had been the hottest critic of IMC. The whole matter has now been brought to boil as an aspect of present Congressional debate on extending defense controls.

The likening of IMC to a "super-cartel," now a favored phrase on Capitol Hill, apparently originated with Felix E. Wormser, St. Joseph Lead vice president. Wormser, in advocating return to a free market, said: "Our own government has traditionally been opposed to monopolies and cartels; but here, already functioning, is a super-cartel."

Republican Congressmen have set up four committees to determine the legality of IMC and its effects on three broad segments of industry. Since 1952 is an election year, and since there are a lot of vocal voters among the unemployed (in e.g.) Detroit, the

investigation is labeled by its critics as a purely political move.

Defendants: Top American participant in IMC is Gabriel J. Ticoulat, who serves on the central group of IMC and is also DPA's deputy administrator for international affairs. The position that he and his associates take on IMC effectiveness:

(1) As yet it is too early adequately to evaluate IMC's allocation plans and recommendations. At present it is still deep in determining long-range plans for higher world production.

(2) America is not self-sufficient in raw materials; thus an "imaginative exploration" of production throughout the world is needed.

(3) Allotments of scarce materials are determined on the basis of questionnaires sent to different governments. On not-so-scarce items in IMC's bailiwick, it feels that its statistical tables have helped allay scare buying-caused shortages.

Summation: Disregarding the obviously political opposition to IMC, there are nonetheless telling arguments against its operation, if not its aims:

Once IMC sets an allotment, there can be no appeal. A manufacturer who feels his country's allotment (and thus, his own) should be larger, can say nothing.

Others feel that American representatives are not at their David Harum best in horse-trading domestic materials for what other countries have to offer.

A third piece of evidence is the sudden appearance of amazing quantities of scarce materials. One explanation is that there has been a change in market conditions due to sudden letdown in inventory buying.

A second possibility is the threat of Congressional investigations. IMC reports that tungsten supplies have increased 20% between the first and second quarters of 1952—a rather miraculous boost. It could be, but higher allocations are a quick way to cool hot tempers.

COMPANIES . . .

Celanese this week was thrice in the news. It plans a common stock issue for its subsidiary Canadian Chemical & Cellulose Co., Ltd. A total of 1 million shares will be offered, half in Canada and half in the United States. Offering price will be somewhere around \$15 per share. The 4 million present outstanding shares of the company are held by Celatino, S.A., a Celanese subsidiary (CW, Feb. 9).

• An oil well came in on an 1,800-acre tract in Crane County, Tex., in which the company owns a sizable

Ozone Kills Phenols in Waste *

New data now show that ozone is one of the most effective agents for oxidizing phenols in industrial wastes. And it turns out to be far cheaper than everyone thought.

These findings, recently reported for the first time, come as a surprise to most people. Ozone had always been looked upon as expensive for this use. It has never been tried with phenolic wastes.

Now it is that the treatment of phenolic wastes by ozone is a lot of cost savings.

The new data on chemical oxidation of phenol wastes came from a cooperative study under the direction of the Ohio River Valley Water Sanitation Commission, with Sanitary Engineering Division, project co-ordinator, and the Welsbach Ozone Process, Inc., project engineer.

If the presence of phenolic compounds in industrial wastes is a problem to you and your community, low-cost, efficient Welsbach Ozone can be the solution to that problem... as proved by the investigations directed by the Ohio River Valley Water Sanitation Commission.

In addition to its low cost, Welsbach Ozone offers dependable, automatic chemical oxidation which requires no full time supervision or labor. With the oxidant being generated at the point of use, there are no procurement, storage or handling problems. And... operating costs are constant and predictable—a most important advantage with chemical costs going up and up, every day.

The record—as shown by the findings of the Commission—proves that Welsbach Ozone should be the oxidant of choice in solving your phenol problem. Welsbach's "know-how"... based on years of pioneering in continuing ozone research... is at your service. Write or phone for further information.

* Ozone Kills Phenols in Waste, Chemical Engineering, Vol. 58, No. 9, September, 1951. (Complete reprints of this article are available.)

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BUSINESS & INDUSTRY

interest. While the company does not plan to move into oil production, its oil interests are part of a long-range program to protect petrochemical raw materials.

• The company has suspended construction on its Rock Hill, S. C. acetate plant. Reason: "poor textile business conditions."

J. R. Geigy, S. A.: Better than 500 acres of land located 40 miles north of Mobile, Ala., has been purchased by Geigy interests. As yet, the company reports, plant plans are nebulous. However, the location is near McIntosh, where Mathieson is building

\$10 million chlorine-caustic facilities.

Ferro Corp. of Cleveland, has been busy diversifying its activities.

• It has purchased a 50% interest in Wel-Met Co., sintered metal parts fabricator, which has plants in Kent, Ohio, and Salem, Ind. One bet on why: Wel-Met could easily produce jet engine parts—and would be a logical outlet for the electrolytic titanium metal which Ferro and Horizons, Inc., will produce. Pilot plant in Cleveland is expected to go into operation sometime in May.

• Ferro also is about to construct two new plants at Nashville, Tenn.,

Who to See on Price Controls

Manufacturers have often been completely confused by the maze of forms and regulations* put out by the Office of Price Stabilization.

Unlike its fellow mobilization agency, NPA, OPS has its task complicated by the fact that three men—an "in-

dustry" man, a lawyer and an economist—must concur on every decision.

Attempts have been made to clear away some of this trifurcate confusion in the bailiwick of Ellis Arnall, former governor of Georgia.

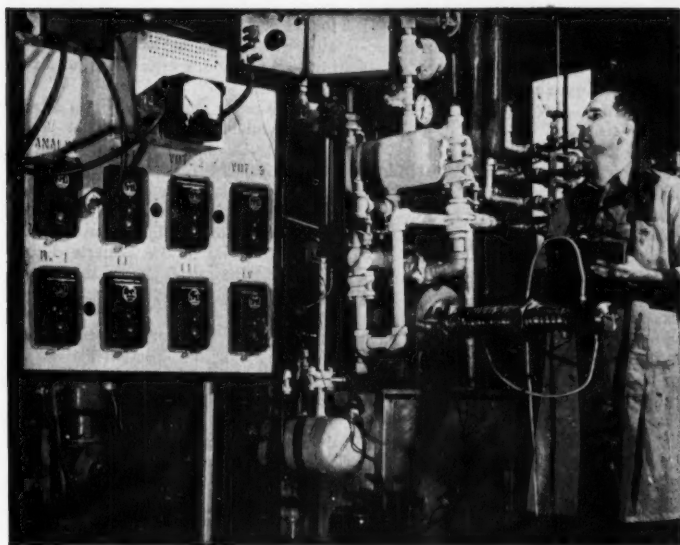
This week, OPS gave CW a breakdown of the divisions responsible for administering the regulations which concern chemical manufacturers. Unlike NPA regulations (CW, Jan. 19), responsibility over OPS orders is centered only in specific divisions.

* A general ceiling price regulation with 27 amendments and 85 supplementary regulations (some of which have amendments of their own); two price procedural regulations; 23 general overriding regulations, some amended; 110 ceiling price regulations, each with as many as 38 supplementary regulations; three distribution regulations, plus a supplement; one survey review regulation; and 82 different reporting forms.

ORDER	SUBJECT	DIVISION	KEY TO DIVISIONS*
PPR 1	Pricing procedures	RS	CD Consumer Durable Goods Division
PPR 2	Advisory committees	OAC	Maitland L. Griggs
GOR 2	Sales to U. S.	CGPS	2005 S, x5493
GOR 3	Exemption of commodities	RCD	
GOR 10	Ceiling price adjustment	RCD	
GOR 20	Adjustment for small business	RCD	
GOR 21	Adjustment under DPA act	RCD	
CGPR	General price regulation	RCD	
SR 1	Defense purchase prices	CGPS	
SR 13	Coking product prices	TPUF	
SR 24	Blackstrap molasses	FR	
SR 44	Water cargo rates	TPUF	
SR 50	Sodium silicofluoride	RCD	
SR 56	Cellulose acetate scrap	RCD	
SR 57	RFC sale of GR-S	RCD	
SR 59	KCl pricing	RCD	
SR 75	Lead, zinc chemicals	IMMG	
CPR 10	Household soaps	FR	
CPR 17	Petroleum products	TPUF	
SR 3	Cyclohexane	TPUF	
CPR 22	General finished products	RCD	
SR 1	Imported woodpulp	FP	
SR 2	Alternate pricings	RCD	
SR 7	Chemical pricings	RCD	
SR 6	Paints and coatings	IMMG	
SR 8	Rubber prices	RCD	
SR 14	Fabricated plastics	CD	
CPR 49	Wood pulp	FP	
CPR 52	Naval stores	RCD	
CPR 57	Antifreeze	RCD	
SR 1	Antifreeze	RCD	
SR 89	Industrial molasses	FR	
SR 1	Inverted molasses	FR	
CPR 99	Natural glycerine	FR	
			CD Consumer Durable Goods Division
			CGPS Coordinator for Government Purchases and Sales
			Thomas B. Worsley
			1047 R, x8561
			FP Forest Products Division
			Rufus I. Worrel
			1011 S, x5663
			FR Food and Restaurant Division
			George L. Mehren
			1073 S, x6242
			IMMG Industrial Materials and Manufactured Goods Division
			Murray D. Smith
			2067 S, x3132
			OAC Office of Advisory Committees
			Ethel Gilbert
			8-214 E, x6253
			FP Rubber Chemicals and Drugs Division
			William P. Drake
			2067 S, x8055
			RS Recording Secretary
			Joseph L. Dwyer
			6-220 E, x8356
			TPUF Transportation, Public Utilities and Fuel Division
			G. Storer Baldwin
			H-265 E, x4244

* Location: Temporary buildings E (4th & Adams), R (4th & Jefferson) and S (6th & Jefferson).
Telephones: Extensions of S Terling 4200. Mail Address: Washington 25, D.C.

Girdler Process News



GIRDLER provides complete engineering service on heat-transfer problems

OPERATING on a continuous, closed-system basis, VOTATOR* Heat-transfer Apparatus achieves from six to ten times higher rates of heat transfer than are obtainable with conventional heat exchangers. This equipment is widely used for heating or cooling, crystallizing, controlling heat of reaction, and many other processes.

Girdler's pilot plant and laboratory facilities are utilized constantly for the development of new processes and equipment, or are available for special research on new processing applications.

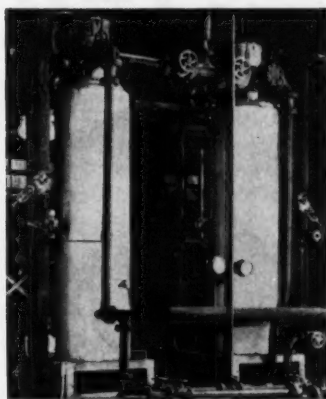
Girdler's Process Engineering Group includes a large number of specialists: architects, cost estimators, and chemical, mechanical, electrical, structural, and instrumentation engineers. Outstanding Girdler chemists and engineers in the fields of oil processing and food technology have developed distinct-

tive processes and apparatus for many plant operations: cooking, cooling, plasticizing, bleaching, hydrogenating, winterizing, deodorizing.

Call on Girdler in the planning stages of *your* processing facilities. You can do so with confidence.

WANT INFORMATION?

Girdler's Votator Division designs and builds complete plants for processing edible oil, food, and many other products, and supplies heat-transfer equipment for continuous processing of liquid and viscous materials. Write for Bulletin V-48. The Girdler Corporation, Votator Division, Louisville 1, Kentucky. District Offices: San Francisco, Tulsa, Atlanta, New York. In Canada: The Girdler Corporation of Canada Ltd., Toronto.



SAVES MANPOWER—Processing with VOTATOR Heat-transfer Apparatus is accomplished under precise, automatic control, with resultant savings in labor and time. Heavy duty units are capable of throughputs running to several thousand pounds per hour and temperature differentials of several hundred degrees. Smaller units provide operating benefits where the hourly processing rate is only a few hundred pounds.



SALES APPEAL—The tremendous appeal of frozen concentrate juices is based on protection of delicate flavor and vitamin content. Processing in a fully enclosed system excludes air. Thus oxidation is minimized and purity assured. VOTATOR Heat-transfer Units at Minute Maid Corporation convert concentrated juices to a sherbet-like ice, in just a few seconds. The automatic, closed-system process assures product uniformity.

*VOTATOR—T. M. Reg. U. S. Pat. Off.

The GIRDLER Corporation

LOUISVILLE 1, KENTUCKY

Gas Processes Division

Votator Division

Thermex Division

PROCESS ENGINEERS • DESIGNERS AND CONSTRUCTORS

pH in a FLASH



the turn of a dial

★
the flash of
a neon signal

★
...and the pH
is measured
precisely

The Coleman Compax is a self-contained, completely portable pH Electrometer, combining the precision of potentiometric measurement with the stability of battery operation. Both standardization and measurement are carried out with a single dial. There are no meters to read—no pointers to set. Long-life batteries—electrodes, buffers, even beakers... everything for a year's dependable service is packed inside the case.

For a demonstration in your lab, or descriptive Bulletin B-225, write Coleman Instruments, Inc., Dept. R.



COLEMAN INSTRUMENTS, INC.
318 MADISON ST., MAYWOOD, ILLINOIS

BUSINESS & INDUSTRY.....

one to house its newest division which makes fiber glass, and the other for the grinding of magnesium under a prime war contract.

• The company will begin production of a new type of clay frit at Nashville later this year. The product has been in development for almost two years.

• Rohm & Haas has arranged a 3½%, 5-15 year, \$8.6 million loan from Penn Mutual Life Insurance. The loan is in addition to the \$1.8 million still outstanding from a \$6 million loan obtained in 1948.

• Mathieson Chemical stockholders will vote, come March 25, on setting up a stock option plan for key employees of Mathieson and subsidiaries. Under the registration statement filed with the SEC, 200,000 shares (market value \$8.6 million) would be tagged for sale at not less than 95% of fair value when option is granted.

Company Pride

You're a medium-sized organic intermediates manufacturer. You require a high-quality, steady labor force, but the number of workers in your area is limited. You want the community to know the importance of your products, your personnel to be proud of the company. What do you do? One company has been experimenting with a series of unique ads in local newspapers, this week labels the series a success, plans to continue this new public relations technique. The company, Kay-Fries Chemicals, Inc., is an old organization—one of the Charles Tennant group—which has been operating its plant at West Hav-

erstraw, N. Y. quietly and efficiently since 1928. But because it makes organic intermediates, its requirements for workers are rather high. An operator must have at least two years' high school or the equivalent, and be intelligent.

There never can be too big a labor force available no matter what your hiring needs are. Rockland County, where Kay-Fries is located, is not thickly populated, and many of the inhabitants commute to New York City some forty miles away. (And American Cyanamid's Lederle Laboratories at Pearl River in the same county is a glamorous competitor for workers.)

A large number of technical men is required for an operation like Kay-Fries' too. These chemists and engineers like to have their company and its products known by more than their professional colleagues. Nothing builds up a man (or his wife) so much as a word of recognition when the breadwinner's employer is mentioned to a bridge partner or the grocer; nothing irks him more than having to go into a lengthy explanation to more or less justify his working for a company.

Where It Stands: Kay-Fries had done little in the line of public relations until last year. The company had never laid anyone off since it started; yet few knew that it was a good place to work, or how it fitted into the industrial scene. For organic intermediates and formaldehyde (which it also makes) can't be as easily explained to the public as synthetic fibers or antibiotics.

At least they weren't as easily explained until Kent Vanderhoef worked out a plan to tell Rockland County

KAY-FRIES CHEMICALS, INC.
WEST HAVERSTRAW, N. Y.

The story of Cyanosacetic Acid can be told in many parts; no one part alone dominant, each contributing to an impressive total. Here is one of the most versatile and important fine organic chemicals made by Kay-Fries.

Its range of uses is wide, ranging from an ingredient in refreshing cola drinks to its use in Penicillin, the so-called truth drug.

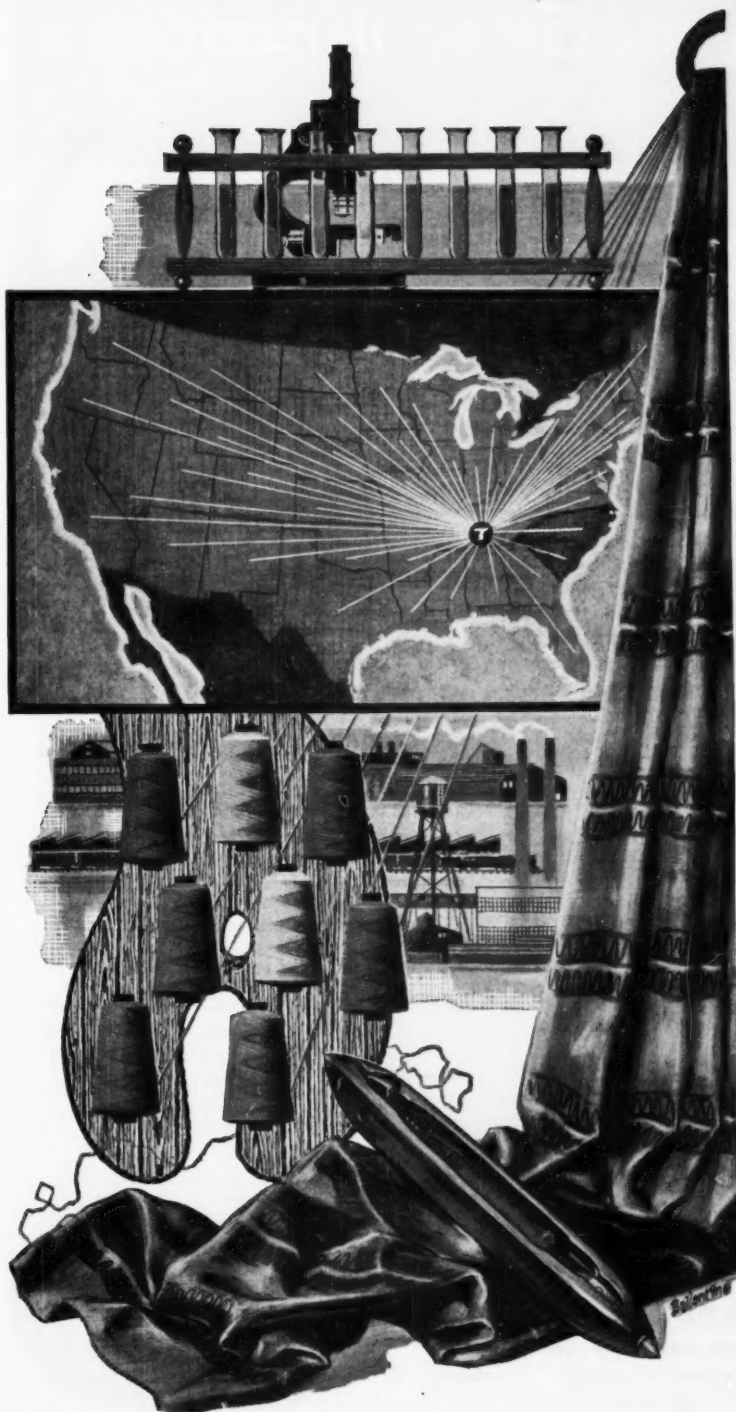
You'll find it in photographic dyes and developers, plastics, drugs and vitamins. It's used in antiseptics, anesthetics, and anti-thyroid compounds—in amino acids, now known to be so vital to the whole life process.

To keep up with the demand for this flexible "building block" of chemistry, Kay-Fries has again increased production. This increase, 50% above previous capacity, has been made while maintaining the quality and purity of this Kay-Fries material, which has already set an unbeaten standard for all others.

Through technical advertisements, such as the one shown, Kay-Fries supplies information to American industry with the belief that these suggestions will lead to new and still better products. The skill, pride of workmanship and cooperation of all its men help make Kay-Fries a good place to work.

KAY-FRIES ADS: An informed community, contented personnel.

THERE'S A TOUCH OF **TENNESSEE** IN **CAROLINA TEXTILES**



The people of the Carolinas were making fine textiles even before the Constitution was signed. The fame of Carolina Textiles has grown with the Country and so has Tennessee's part in this most important industry. Today, Tennessee supplies Acetic Acid for bleaching and treating fabrics; Benzaldehyde for dye manufacture; Pig Iron and Ferro-alloys for machinery—not only to the Carolinas but to the other states producing textiles. And for cotton, the principal raw material, Tennessee supplies Sulphate of Ammonia for mixed fertilizers and Benzene Hexachloride for dust and spray formulations to protect the crops from the Boll Weevil.

Key industries in every state depend upon Tennessee for elements essential to their production processes. That's why Tennessee is known from Coast to Coast as an industry serving all industry.



TENNESSEE
PRODUCTS & CHEMICAL

Corporation

NASHVILLE, TENNESSEE

Producers of: FUELS • METALLURGICAL
PRODUCTS • TENSULATE BUILDING
PRODUCTS • AROMATIC CHEMICALS
WOOD CHEMICALS • AGRICULTURAL
CHEMICALS

DON'T BE FOOLED BY IMITATIONS

Always Specify

DREW

COCONUT FATTY ACIDS

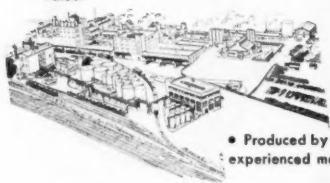
Many have tried and more will try to imitate the composition, color, stability and freedom from odor of Drew Coconut Fatty Acids.

Invariably, lack of specialized knowledge and experience make these imitations fall short of the real thing. Drew's many years of close study of fatty acids, plus modern research and production techniques, give you a product *plus* in Drew Coconut Fatty Acids that is unmatched by imitations.



DREW COCONUT FATTY ACIDS SET THE STANDARD

- Distilled and fractionated to improve composition and odor; to give longer lasting color and stability; and to provide greater soap value.



- Produced by one of the largest and most experienced manufacturers of fatty acids.

- Specified by name wherever government specifications call for highest quality fatty acids.



If *quality* has made your product famous . . . if you want to establish *quality* in your product . . . don't be satisfied with imitations. Always specify *Drew Coconut Fatty Acids*.

Write for Free Reference Booklet, "Drew Fatty Acids"

DISTILLED AND FRACTIONATED FATTY ACIDS

COCONUT	LINSEED
LAURIC	COTTONSEED
STEARIC	CAPRIC
OLEIC	CAPRYLIC
SOYA	MIXED VEGETABLE

TECHNICAL PRODUCTS DIVISION

E. F. DREW & CO., INC.

15 EAST 26th STREET, NEW YORK 10, N. Y.

CHICAGO

PHILADELPHIA

BOSTON

GREENVILLE, S. C.



about Kay-Fries. And telling it in a fashion that would establish the company's importance to the chemical industry which it serves directly, and to the American public which it serves indirectly.

One of the means he arrived at is a series of ads in local newspapers. These half-page spreads contain a reproduction of a technical ad for a Kay-Fries chemical such as appears in a chemical journal. The copy alongside of it cites the types of products such chemicals go into; explains that through such ads the company supplies valuable information to American industry; stresses that the skill, cooperation and pride of its men make the company a good place to work.

Response to these public relations efforts has been enthusiastic. Although the program has been in effect less than a year, employees report that now they have only to mention the company name to get a lecture on its products. Kay-Fries has become synonymous with antimalarials, vitamins, plastics, rocket propellants, insect repellents, etc. into which its chemicals go.

The ads started in three papers last July, now appear in five—a daily and four weeklies on a one-per-month basis. They will continue too. For the workers are happy with their new-found prestige in the community; management, with its contented labor force and the growth in the number of good job applicants; and Rockland County residents, with their "new" important local industry.

FOREIGN.

Fertilizer: India's Prime Minister Jawaharlal Nehru marked March 2, 1952, as a red letter day in the economic and national history of India, upon the formal opening on that day of the \$48.3 million chemical fertilizer plant in Sindri, Bihar.

The Sindri plant, which is wholly Government-owned, was built with the aid of U.S. and British private industry; Chemical Construction Corp. designed and supervised the building of the plant while Britain's Imperial Chemical Industries and Power Gas Corp. handled preliminary surveys and equipment problems.

Seen as a major step in advancing the establishment of a heavy chemicals industry in India, the plant is capable of producing (in full operation) more than 350,000 tons of ammonium sulfate per year, about one-seventh of the nation's fertilizer needs. By reducing India's imports, the Sindri plant will save India \$20 million a year.

England: Britain's Imperial Chemical Industries, Ltd. is staking out a capital

Introducing a New, Rugged All-Crinkled Bag

TUFPAK



Here's a really tough multi-wall bag that will protect your product and save you money. Consider these TUFPAK features:

- 2 to 6 plies extra-strong crinkled kraft paper.
- Made to order in any combination of plain . . . wet-strength . . . wax-treated . . . waterproof . . . mesh-reinforced . . . or polyethylene coated plies. Polyethylene liner also available.
- The *only* all-crinkled bag supplied in 10" to 44" widths.
- Resilient and flexible—absorbs shock, rough handling.
- Creped surface takes slip and slide out of stacking.

TUFPAK—the ideal shipping container for chemicals, foods; powdered, granulated, or crushed products.



NATIONAL WATERPROOF PAPERS, INC.

Manufacturers of Protective Papers,
Liners and Bags Since 1903

102 Beckett Street
Camden 3, New Jersey

Send coupon below
for sample bag
and complete information

National Waterproof Papers, Inc.
102 Beckett St., Camden 3, N. J.

Please send me a sample bag and full details on TUFPAK as indicated below:

Product to be packed
Size of Bag Wt. of Contents

Company

Address

Individual

(Please Print)



*Reg. Pend.

Fits into your picture...

ALLIED UNIFORM COMPOUNDING

PRECISION in formulation and compounding of Gilsonite, Pitches and Waxes to the specifications of protective coating manufacturers has been the core of Allied Service for a quarter of a century. Our customers have come to depend upon the uniformity of each compound, made possible by our skilled technicians of long experience.

GILSONITE

ALLIED SUPER SELECTS—Melting point 270°-280° F. Low viscosity, uniform, clean.

FINES—Obtained from Super Selects Ore. M.P. 270°-280° F.

ALLIED E.B. ORE—Melting point 320°-330° F. Medium to high viscosity, uniform, clean.

PITCH COMPOUNDS

OIL EXTENDERS

Black paints • Varnishes

Baking enamels • Industrial paints

Protective coatings • Drying oil pitches

Various blends—processed to definite specifications and melting points.

WAXES

Ozokerite • Ceresine

All types for special uses formulated to order

Wherever Pitches, Gilsonite and Waxes

fit into your product picture,

call on the Allied agent nearest you.

Allied Asphalt & Mineral Corp.

ESTABLISHED IN 1925

217 BROADWAY, NEW YORK 7 • FACTORY: DUNELLEN, N. J.

AGENTS AND WAREHOUSE STOCKS IN PRINCIPAL CENTERS

ATLANTA
Deeks & Sprinkel Co.

BALTIMORE
Warner-Graham Co.

BOSTON
Mulebath & Griffin

BUFFALO
Wetherbee Chemical Co.

CHICAGO
Philip E. Cole Co.

CINCINNATI
Deeks & Sprinkel

CLEVELAND
Norman G. Schabel Co.

DETROIT
D. H. Oswood Co.

HOUSTON
Joe Coulson Co.

KANSAS CITY
John T. Kennedy Sales Co.

LOS ANGELES
E. B. Taylor Co.

LOUISVILLE
Deeks, Sprinkel & Miller, Inc.

MONTREAL, CAN.
Wm. J. Michaud Co., Ltd.

PHILADELPHIA
Loos & Dilworth, Inc.

PORTLAND, ORE.
Miller & Zehrung Chemical Co.

ST. LOUIS
Harry G. Knapp

SAN FRANCISCO
E. M. Walls

SEATTLE
Carl F. Miller & Co.

TORONTO, CAN.
A. B. Paterson

expenditure program to hike production of the firm's primary products such as alkalis, chlorine, dyestuffs and nonferrous metals. New products, such as pharmaceuticals, synthetic textile fibers, and chemicals from the processing of oils, will also gain from the move.

The firm hopes to by-step the Government's curb on capital investment on the ground that the projects are of national importance.

Man Bites Dog

When Congressional committee members deplore the tactics of their own counsel, it lifts a routine investigation into the realm of "man bites dog," incidentally sheds light—in this instance—on the Delaney Committee's self-appraisal of its role in the examination of chemicals in foods.

The blowoff came while Dr. J. Roy Doty, secretary of the American Dental Association's council on dental therapeutics, was on the stand. Committee Counsel Vincent Kleinfeld repeatedly asked for an opinion on statistics connecting appendicitis and fluoridation of water.

KLEINFELD: "I will just ask one more question, doctor."

COMMITTEE MEMBER PAUL JONES: "Mr. Chairman, this man said he is not an expert on that. I submit that Mr. Kleinfeld keeps pressing him for an opinion which would not amount for much if we did get it . . ."

KLEINFELD: "Dr. Doty is a scientist . . . I asked him whether he could give any opinion on these statistics. If the committee doesn't want to hear it, it is quite all right . . ."

JONES (shouting): ". . . It seems to me we are putting these people on, trying to persecute these people because they have given you their findings, and you have taken an attitude here that is wrong. I do not like the line of testimony or questioning that we have followed here today at all."

KLEINFELD: "Mr. Jones, may I say that if it is the view of the committee that the questioning has been unfair or hostile, I will withdraw from further questioning on this or any other subject."

JONES: "I am just expressing my personal opinion . . ."

COMMITTEEMAN WALT HORAN: ". . . I want to say for Mr. Kleinfeld that I think he has been reasonably good, but I think you are a little bit "hep" like some people here in Washington, Vincent, on this fluoridation thing . . . I am inclined to agree with Paul today that you were . . . prosecuting some of these boys, and that is not what we exist for."

Premium for Thrift

If saving critical materials (and incidentally improving plant performance) interests you, here's a scheme just going into operation at Westinghouse lamp division's Bloomfield, N.J. plant you may want to explore and adapt to your own plant.

Westinghouse is aiming at boosting workers' efforts to conserve vital metals like tungsten, molybdenum, brass and copper on which allotments have been cut back. But at the same time it also hopes to improve employee relations generally. So it has hired Cappel, MacDonald (Dayton, O.), merchandise incentive campaign director, to set up a program—tabbed the "Track 'em Down" campaign—for the plant.

The system is not new to any boy who ever sold *Saturday Evening Post* subscriptions: Westinghouse sets achievement goals, and employees receive prize points for winning slogans, acceptable suggestions, improved attendance records, material efficiency records, improved quality and safety marks. The points are redeemable for prizes—luxury items like luggage, electric mixers—listed in a merchandise prize catalog prepared by Cappel, MacDonald.

Considered a "pilot operation" at this point, the program is scheduled for 11 months. If employees are as eager to win a bedside radio as a youngster is to earn a B-B gun—and Cappel, MacDonald says they are—Westinghouse should be able to save enough critical material to keep its production continuous. That's its goal.

Service City

Stauffer Chemical joins other major lessees at Henderson, Nev. in ownership of newly formed company, Basic Management, Inc., which is negotiating to purchase so-called "residual assets" of the Basic Magnesium plant. Colorado River Commission and General Services Administration are expected to approve the purchase contract, now in third draft.

Other companies comprising Basic Management are Titanium Metals, Combined Metals, U. S. Lime and Western Electrochemical. In addition, Hercules Powder, which recently purchased 11 acres at Henderson from the Colorado River Commission for a \$3 million insecticide plant, is expected to join by the time its plant goes on stream late this year. Whether it—or any other company coming to Henderson later—joins, will be up to Basic Management and the company involved.

The "residual assets" include facil-



Barrett

CRYSTAL UREA OF HIGHEST PURITY

for PLASTICS • ADHESIVES • PAPER COATING
TEXTILE FINISHES • SYNTHETIC ORGANIC CHEMICALS

Barrett Crystal Urea is ideally suited for these and many other uses. For example, this high-quality Urea meets specifications for moldings in delicate pastel shades.

Barrett Crystal Urea is another member of the big family of Barrett basic products which serve industry and agriculture. It is available for immediate shipment, in 100-pound multiwall bags from South Point, Ohio.

OTHER BARRETT CHEMICALS

available to the plastics industry

ELASTEX® 10-P Plasticizer, "ELASTEX" 28-P Plasticizer, "ELASTEX" 50-B* Plasticizer, "ELASTEX" DCMP Plasticizer, Dibutyl Phthalate, Phthalic Anhydride, Phenol, Phenolic Resins, Cresols, Crocylic Acids

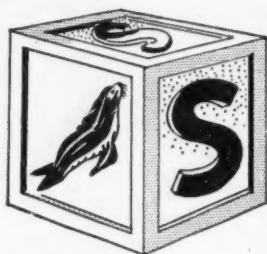


THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N. Y. *Reg. U. S. Pat. Off.

America's Leading Distributor of Nitrogen Products



S is for SealPak

The Mente Laminated Bag

...

S stands also for

**Strength
Safety
Security**

and for being Sure of the Superior Service and Special Satisfaction that this Sturdy Sack will give

...

Burlap (or cotton) on the outside, paper on the inside — the two laminated together with a smooth, even film of asphalt (or other special adhesives) to make a strong, protective bag guaranteed to preserve the original fine quality of your product



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MENTE & CO., INC.

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Sales Offices or Representatives in
New York, Chicago, St. Louis,
Denver, Cincinnati and
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Textile Bag Specialists Since 1885

BUSINESS & INDUSTRY

ities for distribution of water and power from Hoover Dam, and for disposal of sanitary and industrial wastes, plant railroad, street system and housing and land at the townsite. Purchase price will be based on an audit of obligations of the Nevada Colorado River Commission to the Federal Government, but has not yet been set. It will approximate \$5 million.

Equal Voices: All five members of the plant city are equal partners in managing it, with one director each. But each company's financial responsibility in Basic Management will be proportional to the amount of residual assets it uses.

Sale of the Basic Magnesium plant will put valuable property on Nevada's tax rolls and take the state out of the housing and utility business. No final or binding agreements have been made, but a promise has been given by Basic Management to set aside 13½ million gal. of Lake Mead water daily for use of the Las Vegas Water District once the District completes its current expansion plans.

The District has had difficulty financing and engineering the additional facilities required to qualify for this quantity of Lake Mead water. So Basic Management will give the District 5 million gal. as soon as it takes over, and an option to qualify for the additional 8½ million later on.

Long-Time Tenant: Stauffer was the first company to lease a portion of the

then moribund Henderson wartime magnesium plant, taking over operation of the chlorine-caustic unit on May 21, 1945. Since then it has enlarged the manufacturing facilities and added new ones. Contrary to current reports, however, nothing definite has been decided regarding its purchasing the facilities it now leases. Its lease-option agreement with the Colorado River Commission still has 17 years to run.

But if Basic Management purchases the residual assets, GSA will terminate the original letter of intent with the Colorado River Commission and take over control of the remaining lease-option agreements covering plant sites now leased.

Western Electrochemical has offered \$4,963,000 for the facilities it now leases. The offer has been accepted by the Colorado River Commission, approved by the State Board of Control and GSA, and is now in escrow pending a final audit. This will be completed as soon as title company and lawyers settle details, a procedure that should take about another two weeks.

It is also possible that all negotiations for transfer of title to Basic Management may be concluded by that time too, including perhaps purchase of leased facilities by Titanium Metals, Combined Metals and U.S. Lime. On the other hand, negotiations conceivably still could fall through, but it is not likely.



Fire at Hyman Plant

PRODUCTION WILL BE DOWN for about six weeks at the Denver, Colo., insecticide plant of Julius Hyman & Co. as a result of a \$250,000 fire. A boiler building and adjacent storage were destroyed. The company reports, however, that inventories of dieldrin and aldrin are ample to meet current requirements.

PROCESSING

**MAINTENANCE
AND SERVICE**

RESEARCH



You, too, can use versatile **DU PONT SULFAMIC ACID!**

Sulfamic Acid is a non-volatile, non-hygroscopic, white crystalline solid. It's nearly equal in strength to sulfuric acid, yet is much less corrosive and forms extremely soluble salts. Because of this desirable combination of properties, Sulfamic Acid already answers many different needs. And its unique qualities also indicate a variety of future uses.

You can use it for processing

- Nitrite removal
- Sulfonating phenols, sulfating alcohols
- Dehydration of amides to nitriles
- Insolubilizing proteins
- Catalyzing alkylation, polymerization and addition reactions
- Heavy metal and by-product separation
- Electroplating and refining metals
- Pickling, polishing and etching
- Plasticizing and fire-retarding paper and paper coatings
- Laboratory reagent

You can use it for maintenance and service

Cleaning:

- Sugar evaporators
- Paper mill wet felts, wires, moulds and screens
- Milk pasteurization equipment
- Boilers and pulp digesters

Removing:

- Drawing compounds from wire and other drawn articles

You can use it in research

Also, consider Sulfamic Acid as a new chemical reagent and research tool.

Du Pont Sulfamic Acid is easy to handle . . . acts quickly . . . saves time. *Write today for latest technical information.* E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington 98, Delaware.



REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

PROTECTION

***built
in***

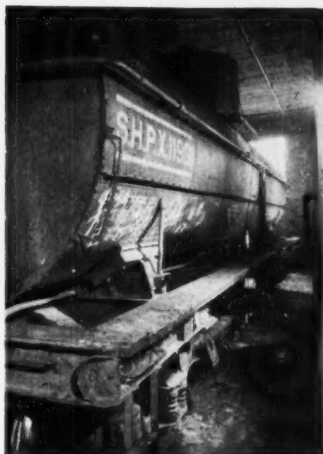


Fulton's W.P.P.L.
(Waterproof Paper Lined)
Bags provide built in protection for your product. An inner lining of tough crinkled Kraft paper, or plastic, is laminated with special adhesives to cotton or burlap...safely...surely...sealing in your product against the damaging effects of moisture, odors, or other outside influences. Many manufacturers have found that **Fulton W.P.P.L. Bags** give them all the advantages of more expensive rigid containers, with the economy and other savings of an easy-to-handle textile bag. For full details, write your nearest Fulton factory today!

Fulton **BAG & COTTON MILLS**

Atlanta • St. Louis • Dallas • Denver • Kansas City, Kans.
New Orleans • Los Angeles • Minneapolis • New York City

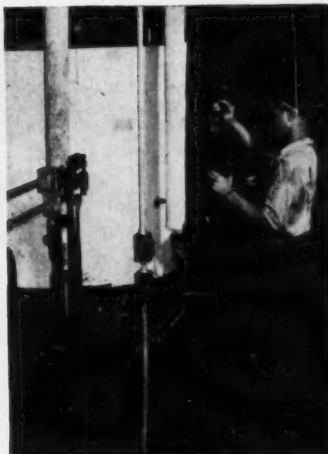
SPECIALTIES



1 RAW MATERIALS in tank cars drain into below-tracks storage.



2 PROCESS STARTS ON sixth floor; ingredients are stored, weighed there.



3 WEIGH TANKS measure oil from storage, feed it to soap kettle.

Super Service on Custom Soaps

An industrial liquid soap production line that:

- Lures sanitary specialties makers from overseas
- Helps boost soap sales over 40% in one year

• Offers customers same-day service on specialized soap orders is the pride of U.S. Sanitary Specialties Corp. in Chicago.

USSSC, a leading liquid hand soap maker, moved into its new plant in 1950. Word on the new soap production line, with its gravity flow, push-

button operation and minimum re-handling soon traveled as far away as Australia. Last December, Victor E. Gibson, managing director of A. B. Gibson & Sons in Melbourne, journeyed to Chicago for a look-see at the novel installation before his company started construction on its own works.

Gibson was enthusiastic: "The trip was justified . . . I plan to incorporate many of its features in my own plant when I return."

And USSSC likes it too. Last year sales of its hexachlorophene-contain-

ing soaps climbed 41%. This week CW camera visited the plant, saw how the customer order is made part of the production line.

Space Saver: Soap concentrates are made up to double usual strength (40%), halving storage space and filtering volumes. Blending room tanks store the stock soap, are connected to a common manifold at the scales and interpiped so that transfer is simple. Air pressure is used to speed flow.

When a customer's order (actually the shipping order) reaches the blend-



4 LYE IS ADDED from calibrated tanks as fast as boiling oil will take it up.



5 SOAP FLOWS to floor below, through aging, cooling tanks. Concentrate is sampled at nylon filter.



**mining
refining
manufacturing**

INTERNATIONAL POTASH CHEMICALS

When you depend on *International* as your source of supply for potash chemicals, you can be sure of the materials you want, when you want them. You get on-time deliveries of the quantities you need because of *International's* exclusive three-way control of the production of potash chemicals . . . mining, refining, manufacturing.

International's large mining and refining facilities at Carlsbad, New Mexico, provide ample supplies of raw materials. The electrochemical manufacturing plant at Niagara Falls, New York, assures you fine quality chemicals that accurately fit your specifications.

Address inquiries to Industrial Potash Department, International Minerals & Chemical Corporation, 20 North Wacker Drive, Chicago 6; 61 Broadway, New York 6.

potash chemicals Caustic Potash—All Standard Grades • Carbonate of Potash—All Standard Grades • Potassium Chloride—Refined and Technical Grades • Potassium Sulfate • Chlorine



potash division

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

General Offices: 20 North Wacker Drive, Chicago 6

SPECIALTIES



6 CUSTOMER'S FORMULA is entered on incoming order. Basic concentrated soap stocks are waiting in blending room storage tanks.

ing room, soap is freshly made in the drum, drum is stenciled and rolled into truck or boxcar faster than it could be brought from storage.

Drums are filled by weight rather than volume so that temperature changes won't have to be compensated for. A reverse-type scale cancels out drum and can tares and is electrically connected to solenoid valves which cut off flow at the pre-set point.

A drum is placed on the scale, minor ingredients (hexachlorophene, perfume, dye, etc.) called for by the customer's formula are added in measured quantities. A formula chart shows how much 40% soap and soft soap water the formula calls for. Scale weights are adjusted to soap required, soap hose is inserted in drum bung-hole and starter button pushed. When

correct weight of soap is in drum, solenoid cuts flow.

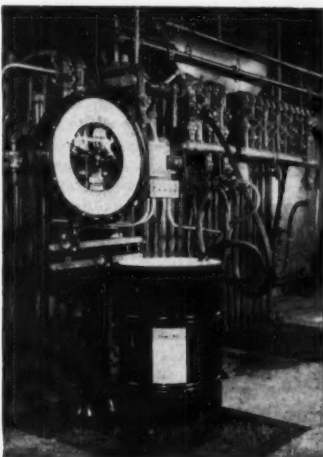
Soap hose is replaced by water hose, scale set for the proper quantity of water, starter button pushed again. When drum is filled to desired weight, solenoid again cuts flow. Stenciling completes the operation and the drum is ready to go.

USSSC figures it can swing right into production with any new additives. Shipments would roll in 24 hours, with no "obsolete" brands to dispose of.

"We don't expect many people to make a 10,000 mile trip to visit us," says W. S. Jessop, vice president and sales manager of USSSC, "but we're glad to show our plant to other specialties makers. We find we've eliminated finished product storage, and most of our work is done before our mail is opened."



7 IN BLENDING ROOM, drums are filled according to formula.



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Present management will retain complete control of company

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- ☐ RUBBER ☐ LATEX ☐ LEATHER
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ADDRESS: _____

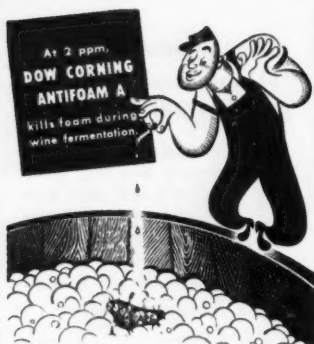
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SPECIALTIES

Potter's Field

Makers of small electrical assemblies have long had a problem: When the units were potted or encapsulated in insulating plastic, shrinkage in the mold sometimes crushed fragile components, plastic sometimes cracked open. Last spring a small Brooklyn firm, B. G. Forman, was organized to produce a compound more suitable for electrical uses, has recently marketed its product, Polyform.

Forman says Polyform offers these advantages: sets and cures quickly at room temperature (will set in five minutes, cure in a day); doesn't crack or shrink out of shape; is compatible with most other molding compounds.

Newest use, devised by the Army's Signal Corps, is in the field. A tube of quick-gelling Polyform can be used to make emergency repairs on vital communications equipment.

The polyester styrene molding compound was devised by company president B. G. Forman. Now, in crowded quarters in Brooklyn, the ten employees of the firm are producing Polyform in pilot plant quantities.

Polyform is sold as a high viscosity liquid, which can be modified with non-volatile thinners as desired. When the compound is to be used, a catalyst is mixed in, and in cases where room temperature gelling is wanted, a special accelerator is added. After removal from the mold, curing can be effected at room temperature, or in 15-30 minutes at 213-240° F.

Three forms are marketed now. Polyform G 107 has slight (2-3%) shrinkage, and is suggested because of easy mold extraction, dipping operations. G 622 has no shrinkage, is recommended for potting transformers in cans. G 1230 has slight expansion, is used to embed complete units and adhere to cavity walls.

Cost is somewhat higher than that of similar products. Forman claims the difference can be made up on savings made on fewer rejects. Ten- and twenty-dollar sample kits are offered; prices on larger quantities start at \$3 per pound in five pound lots, drop to \$1.80 per pound in 18-drum lots.

Granulated Insecticides

Recently tested at Clemson University is a new method for applying insecticides, in absorbent clay granules containing 16% active ingredient.

Using regular airplane dusting equipment, the new method is advantageous in that the grains don't blow away, and the insecticide (tests have been with Dieldrin) is spread through the soil as the particles weather.

Hope of the South Carolina researchers is to kill boll weevils in the ground. Toxicants have been added to fertilizers in the past in a similar effort to kill larvae, and granulated insecticides have been tested in Arkansas on rice field insects.

Chlorophyll Suit

Federal Judge William H. Atwell ruled as valid the patent of Rystan Co., Inc. (Mt. Vernon, N.Y.) covering the therapeutic use of its chlorophyll compositions.

Suit had been brought by the Mt. Vernon company against the Warren-Teed Products Co. of Columbus, Ohio on the charge of infringement of U.S. Patent No. 2120667. The judge, giving his decision in the Federal Court for the Northern District of Texas, went on to award Rystan President O'Neill Ryan, Jr., an injunction and damages of \$6,727 on behalf of his concern.

The patent applies to the use of chlorophyll paste, ointment and solutions for medical and dental purposes. Mr. Ryan's attorney introduced witnesses to attest the healing and deodorizing qualities of his chlorophyll preparations. Rystan's line of chlorophyll products are marketed under the trade name of "Chloresium."

Diamond Detergent: For cleaning milk-handling equipment and utensils, Diamond Alkali is offering a new detergent called Diamond Neutral 50 Dairy Farm Cleaner.

Plasticizers: Rohm & Haas has introduced two new plasticizers: Light, clear Monoplex S-71 is for vinyl polymers used in upholstery sheetings, garden hose. Monoplex S-38 is a higher molecular weight primary vinyl plasticizer suggested for use in filled and pigmented compounds.

Better Use of PCP: The Wood-Treating Chemicals Co. (St. Louis) and Carr, Adams and Collier Co. (Dubuque, Ia.) have developed a new process for applying pentachlorophenol as a wood preservative.

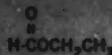
Washable Flat: A washable, flat interior finish has been developed by General Paint Corp. (San Francisco). The paint is rubber-based, has been tagged Vel-va-cote.

Germ Killing Rinse: Sterwin Chemicals is marketing a new germicidal hair rinse, containing Roccal, Sterwin's germ killer, for use by barbers and beauticians. Sold in 8-oz. bottles to the trade, the new preparation is

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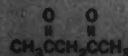
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ETHYL β -ETHOXYPROPIONATE



PENTANEDIONE-2,4

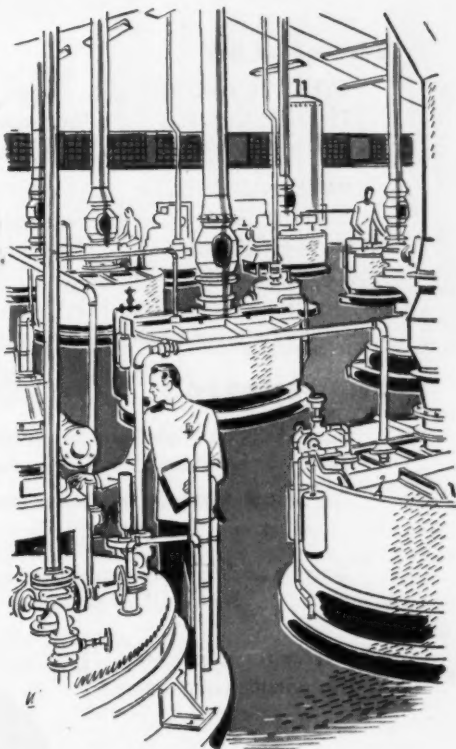


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SPECIALTIES

diluted one teaspoon to a quart of water. Active ingredient: alkyl-dimethyl-benzyl-ammonium chloride.

Electroplaters Move: Executive offices of the American Electroplaters' Society will move to the American Building, 445 Bond Street, Newark 2, New Jersey, April 1.

Diversey Earnings: Though net sales for 1951 were \$9,131,290, up about half a million over last year, net earnings after taxes of the Diversey Corp. (Chicago disinfectants and detergents manufacturer) dropped from \$461,757 in 1950 to \$453,278 in 1951.

More Fertilizer: Officially opened and in full production now is the new 60,000 ton/year fertilizer plant of the International Minerals & Chemical Co. at Fort Worth, Texas.

Cold War: Winthrop Stearns has introduced a new prescription-sold tablet for upper respiratory infections. It contains Thenfadil (N,N-dimethyl N'-(2-pyridyl)N'-(3-thenyl)-ethylenediamine) and APC (acetylsalicylic acid, phenacetin, and caffeine).

Pulp Pump: A new pump for handling high consistency pulp and heavy liquors in the paper industry has been developed by Allis-Chalmers Co. It's one of its PW series machines.

Pantastic Competition? Muffin tins coated with Du Pont's Teflon don't need to be greased, don't stick to the muffin. Displayed at the Fifth National Plastics Exposition, along with Teflon rolling pins, the new applications aren't yet available to the housewife.

Abrasive Glue: A high-strength glue, Belgrade Glue, compounded especially for binding the abrasive to the surface of metal-polishing wheels has been developed by Hanson-Van Winkle-Munning Co. (Matawan, N.J.).

Canadian Polish: Available now in Canada is a new lacquer-based floor polish, which will soon be distributed in the U.S. Albo #50 New Lac, made by Albo Products Co. Ltd. in Montreal, is claimed to last 5 times as long as wax polishes, offers a quick-dry non-skid, waterproof surface.

The polish sells for about twice the price of present wax-based types; Albo claims economy because of the durability of the polish. At present, main Canadian outlets are floor covering stores.

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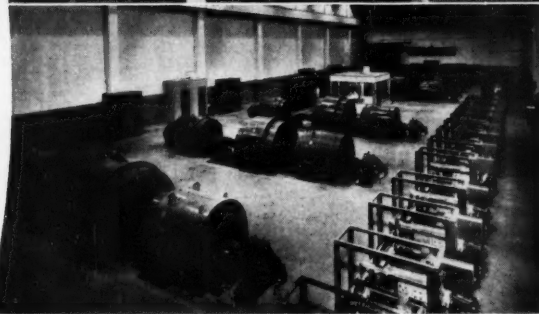
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Ignitron Rectifiers— Show Best Conversion Efficiency

Perfected by Westinghouse engineers in 1937, Ignitrons today are the chemical industry's Number One conversion method. They show the best conversion efficiency, lowest first cost for operation above 200 volts, and supply many cells in series. Ignitrons require very little maintenance and human attention (many installations are unattended). Shown at left: twelve Ignitron assemblies supply 60-thousand amps at 325 volts to electrolytic cells.



Motor-Generator Sets— Have Wide Voltage Range

Once the leader in power conversion, M-G sets are still important where high current or variable d-c output voltages are needed. Voltage is easily regulated by controlling the generator field. For supplying 100 to 200 volts to cells in series, M-G sets have highest conversion efficiency. At left are five Westinghouse M-G sets which feed 50,000 amps to cells producing magnesium.

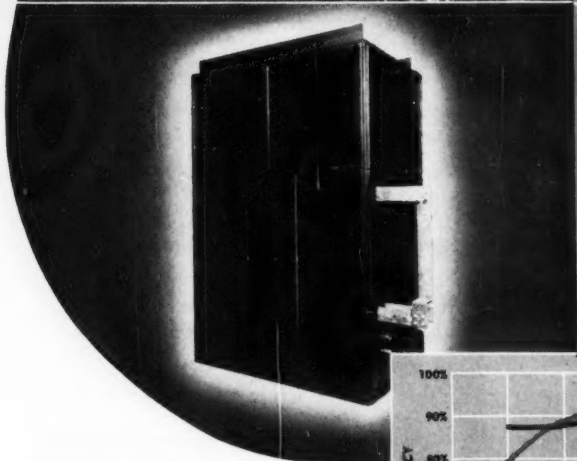
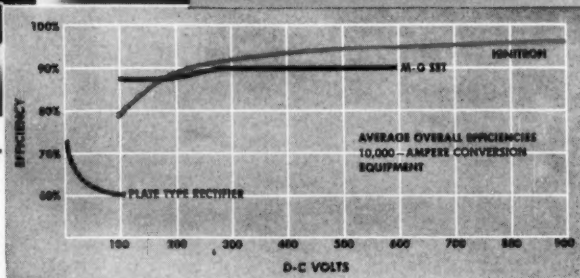


Plate-Type Rectifiers— Permit Precise Cell Control

Copper-oxide and Selenium Rectifiers are best for low-voltage power (25 volts and under) for a small group of cells. They permit unusually precise cell control. Units are suited to variable output voltage. They require practically no maintenance and can readily be set up for automatic operation. Shown at left is a Selenium Rectifier for electrolytic operations. Interior of this unit is pressurized to prevent entry of corrosive gases.



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Conversion Method Has Big Effect on Power Costs, Cell Operation

In a big electrochemical operation, a 5% difference in conversion efficiency can make a \$20,000 difference in the annual power bill. A small improvement in voltage regulation can make major improvements in cell operation. So selecting the *right* conversion method can pay big dividends in power savings, production efficiency, product quality and equipment maintenance.

Westinghouse Makes All Three; Gives Unbiased Advice

Almost every electrochemical process is different—and the tricky problem is matching the conversion equipment to the needs of your operation. Here's where Westinghouse can really help—because we've had a great deal of experience in

the manufacture and application of *all three* important conversion methods. We know the advantages and best operating practice for each—Ignitrons, motor-generator sets, and plate-type rectifiers. Thus we can give you expert, *unbiased* advice in selecting new equipment or getting the most out of your present installation.

Review Your Operation; Have Westinghouse Help

A thorough study of your present conversion operations could mean big savings. A Westinghouse specialist would be glad to help you review them—with no obligation of course. Just call your Westinghouse office. And when planning new installations, be sure to call in Westinghouse early. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna. J-94897



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CHEMICAL INDUSTRY

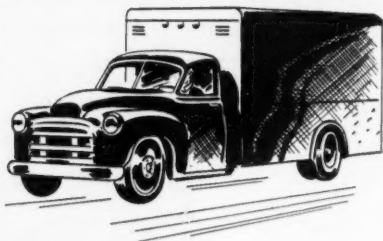
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RESEARCH

Spreading the Gospel

Applied research, American style, is the theme of a brand new report prepared for Mutual Security Agency.

Beamed at research administrators in MSA countries, the report gives the word on organization, administration, financing and other aspects of our industrial and Government research.

It's just a primer, but does reveal some interesting data on the costs and structure of Federal research.

The ABC's of American applied research will soon be getting a lot of study by some learned foreign scientists. Right now, a thousand copies of a report entitled "Applied Research in the United States" are on the way to a score of friendly nations overseas.

Prepared by eleven top industrial,



EUGENE W. SCOTT: For foreign consumption, a research yardstick.

Government and academic research administrators (including Merck's Randolph T. Major, General Electric's C. Guy Suits and Ferro Corp.'s Glenn H. McIntyre), the report was edited by Eugene W. Scott, chairman of the Government's Interdepartmental Committee on Scientific Research and Development.

It won't raise many eyebrows in this country, but then it's not supposed to. The report is strictly for foreign consumption. It's intended as a yardstick against which foreign efforts may be measured, a guide to the organization of new research ventures or the improvement of those in existence.

Mutual Security Agency, one of

the heirs to the defunct Economic Cooperation Administration, paid the freight for the tome, will distribute it to MSA countries throughout the world. Foreign research administrators, both in government and industry, will be on the receiving end.

In the course of putting the story over to its global audience, the report points up some vital statistics which should be of considerable interest to home-front researchers as well.

Government Lowdown: Since 1940, Federal support of research has increased about twelvefold. At first glance this might appear to be a very conservative estimate. In 1940, for example, the Government spent \$73 million for research and development; the estimated expenditure of \$1.6 billion in 1952 is 22 times greater. But figure the dollar's loss of purchasing power during the past decade and you come up with only a twelvefold true increase.

How the wealth is distributed also makes interesting reading. At present, 22 Federal departments and agencies allow for research in their annual budgets. In the fiscal year 1951, ten agencies received over 98% of the total Federal research and development appropriations. Two of these,* National Advisory Committee for Aeronautics and National Science Foundation, are solely research agencies, have no other function.

Government research spending may be divided into two broad categories: intramural, for programs in Government-owned and operated facilities; and extramural, for farmed-out research. The latter probably has the greatest direct impact on industry.

Here's how it's broken down: The lion's share of extramural expenditure is for developmental work under Defense Department sponsorship. This type of work nearly always is done by industrial corporations. Remaining extramural funds chiefly support basic

* The others: Departments of Agriculture, Commerce, Interior, Army, Navy, Air Force, Atomic Energy Commission and Federal Security Agency.

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RESEARCH

research in universities and some applied research in universities and industrial organizations.

Research groups are enlisted into extramural programs on the basis of their capabilities for specific jobs; most work is done in privately-owned laboratories. The obvious result is that most research money goes to those sections of the country—North Atlantic States, North Central States, California, Texas—that possess highly developed industrial research organizations.

A noticeable effort is now being made to extend support to other sections of the country which have competent people, though lacking extensive facilities.

Today, about 80,000 scientists and technicians are on the Federal payroll in Civil Service positions; salaries range from \$3,410 to \$14,800 a year. The latter figure, a recent innovation in Civil Service, is top salary of three super-grades (starting at \$12,000) set up in 1949 to reduce the loss of high-caliber men to better paying jobs in industry.

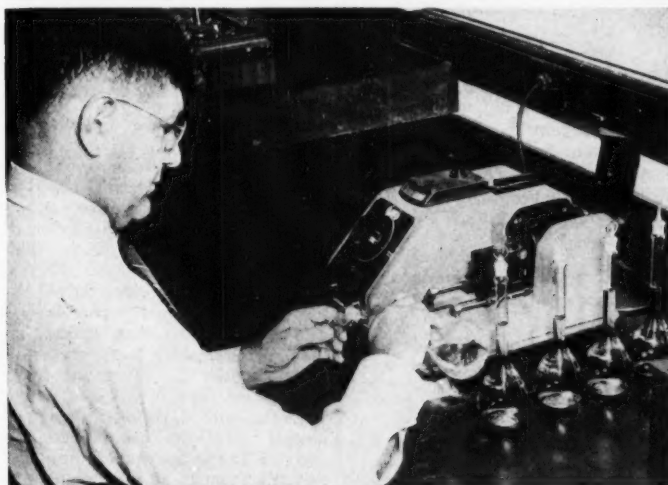
Of 700 positions in these super-grades, scientists hold about 105 or 15% of the total. But the limits of material reward inherent in Government service are clearly recognized by Editor Scott and his consulting authors. Their report frankly states:

"In general . . . the technical man seeking . . . an executive position in a large research organization with substantial financial reward cannot do so in the Federal Government. He can reach an important executive position with great responsibility if he is willing to accept prestige in lieu of money."

Perhaps of more interest to domestic than foreign research administrators is how Government research policy is formulated. Of course, ultimate responsibility for the Federal research program rests with Congress. But its decisions, in large measure, are based upon the recommendations of several coordinating groups.

Here's who they are and what they do:

- Bureau of the Budget. Reviews budget requests of the various agencies; compares plans of all with an eye to apparent duplication.
- Interdepartmental Committee on Scientific Research and Development. Studies administrative problems of Federal research organizations; makes recommendations for their solution to the proper agency.
- Science Advisory Committee. Part of the Office of Defense Mobilization; advises the President and Director of Defense Mobilization on research of significance to the defense effort.
- National Science Foundation.



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YELLOW BISMUTH-THIOUREA COMPLEX is added to a photometric cell for measurement of light-absorption. It's part of a quick, new Bureau of Standards procedure for the determination of bismuth in lead-tin alloys. Here's how it works: Sample is dissolved in a hydrobromic acid-bromine mixture, treated with perchloric acid and heated to remove tin, antimony and arsenic. Nitric acid is added and bismuth precipitated as the oxychloride; precipitate is then dissolved in more acid, treated with thiourea and analyzed spectrophotometrically.

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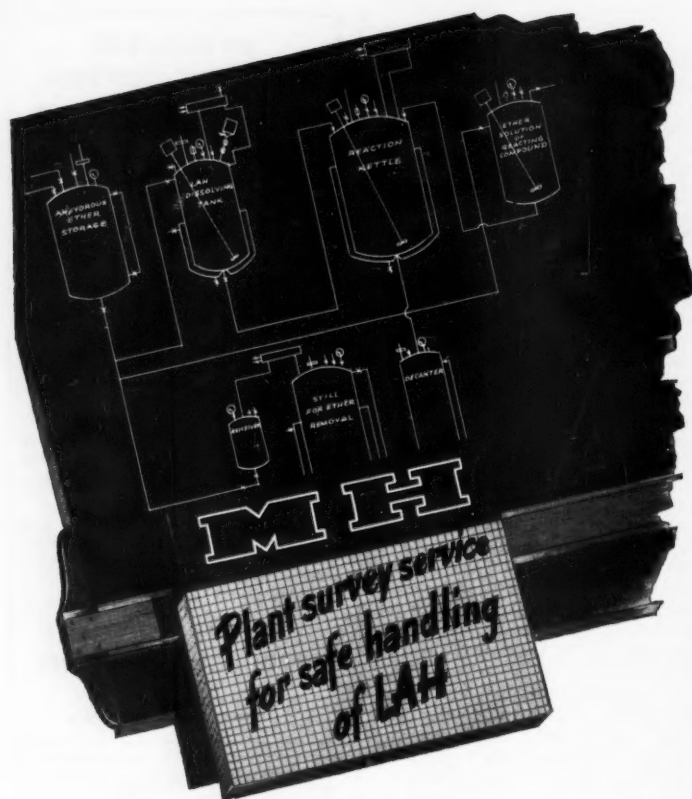
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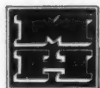
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LAH is a powerful reducing agent for organic compounds; e.g., acids, acid derivatives, aldehydes, ketones, and nitro compounds. As a reagent LAH is used for determination of active hydrogen, water, and functional groups. Reductions may be made at room temperature and atmospheric pressure.

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*Reference: Lithium Aluminum Hydride in Organic Chemistry (German), Ulrich Solms, Chimia, 5, (25-39), (1951).



METAL HYDRIDES

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RESEARCH

General evaluation of research programs under way.

• National Academy of Sciences-National Research Council. Provides a mechanism whereby the Government can get the advice of the nation's scientists when needed; stimulates research through fellowships.

Aside from its treatment of applied research in the Government, the MSA study goes into some detail on the whys and wherefores of applied research in industry, universities and independent industrial research institutes. Most of this material is pretty basic information.

But here's one observation worthy of some thought: "There is a limit for profitable plowing of funds into research, determined largely by availability of capital and management to take advantage of the results." We are apparently nearing that limit now, for the report goes on to say: "... continued expansion of research in the United States will chiefly result from new research departments being started by companies that do not already have them."

New Insecticide Check

A fast new, economical method for determining residual quantities of chlorinated insecticides on fruits, vegetables, fats and oils has been developed at the University of California.

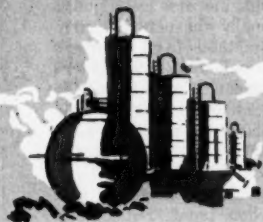
Brain-child of entomologist Harold T. Gordon, the new technique is sensitive to quantities of chlorinated insecticides down to one microgram. And it's equally good for lindane, chlordane, toxaphene, aramite, methoxychlor or DDT.

Briefly, here's how it works: The substance to be analyzed is rinsed or macerated in a chlorine-free solvent, treated with an alcoholic solution of sodium propoxide and heated. Sulfuric acid, added to the hot solution, precipitates sodium chloride; impurities stay in the organic solvent layer.

The chloride is then oxidized to free chlorine, which is absorbed in a green coal-tar dye. Progress of the reaction can be followed by a simple color change. Colorimetric analysis readily gives the concentration of chlorine in the dye and, in turn, the chloride content of the original insecticide. From this information and the known composition of the insecticide, the weight of the residue is calculated.

The entire run takes only 1½ hours. According to Gordon, a trained technician can do at least twelve analyses in a two-hour period. And the only equipment required in addition to

Fields of activity indicative of Vulcan Engineering experience:



Fifty years of specialization in engineering for the Chemical Process Industries have yielded a wealth of experience and accumulated know-how which places Vulcan in a unique position to handle efficiently special problems in design and construction of chemical plants.

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Antibiotic production; fermentation pilot plants; recovery units for solvents utilized in antibiotic purification; and special production and separation processes for biochemical operations.

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Complete units for separation of low and high purity oxygen from air; hydrocarbon separations; low temperature vessels for storage and transportation of gases.

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Concentration and combustion of aqueous organic chemical waste liquors, particularly liquors containing carbohydrate and ligneous components; with provision for heat and power recovery where economically feasible.

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Absorption, extraction, and distillation processes for organic solvent recovery; sulfur dioxide recovery from sulfite pulp mill waste liquors and stack gases; and organic vapor recovery from vent gases.

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Liquid-liquid extraction processes for recovery and purification of liquid and solid organic chemicals; the Vulcan-Kennedy liquid-solid extraction process for oil-seed processing, soluble coffee production; fiber washing and other specialized countercurrent diffusional operations.

Inquiries concerning process problems will receive prompt attention by the engineering staff.

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RESEARCH

ordinary analytical apparatus are several Conway cells costing about \$2 apiece. Added attraction: The method does fine with technical grade (but chloride-free) reagents.

A Hitch: But all is not sugar and spice. Although the new technique is faster and usually cheaper than more conventional methods (e.g., Gunther's aramite determination; Schechter's method for lindane), it's not specific for any one chlorinated insecticide. Where specificity is required, Gordon's procedure must give way to its predecessors.

Lack of specificity, however, isn't all bad. Gordon points out that it makes for simplified laboratory setups and only one insecticide is generally used on a given specimen at a particular time. He feels that it's not a fatal handicap. As a matter of information, California Packers League already is using the method to trace lindane in its canning processes.

New Nonionics: Two nonionic surface-active agents are the news from Oronite Chemical Co. They are Oronite's dispersants NI-8586 and NI-8593, noteworthy for their emulsifying, suspending, wetting and detergent properties.

Application as a detergent for commercial or self-service laundries is likely to be NI-8586's chief money-making application. Because of its high detergency and relatively low foaming characteristics, NI-8586 is well suited to tumbling-type agitation, standard in commercial laundry machines. Blending with tripolyphosphates, inorganic builders and nonionic surface-active agents to increase detergency and sudsing is easily accomplished. Aside from its use as a detergent, NI-8586 has possibilities as: a dispersant for lime soaps; an emulsifier in solvent cleaning operations; a low-foam wetting agent; a detergent-sanitizer (in combination with quaternaries).

Dispersant NI-8593 is recommended for use as a dry-cleaning detergent in petroleum solvent systems. Qualifications: Good emulsifying characteristics for water in solvent and high solid-suspending power.

Odd Member: Klaus Hofmann, research professor of chemistry at University of Pittsburgh, reports the discovery of a new fatty acid produced by at least two strains of lactobacilli. Structure of the compound is not definitely known, but it's believed to be trans-di-2,3-methyleneundecanoic acid. Interesting feature: The new acid contains 19 carbon atoms; natural fat-

RESEARCH

ty acids normally have an even number of carbons.

Hofmann came across the odd fatty acid during a study of the role of biotin in bacterial nutrition. Significance of the discovery still is not clear. One theory holds the acid to be a new vitamin.

Skull Session: Design of research operations will be the theme of Columbia University's third Annual Conference on Industrial Research for five days beginning June 9. According to David B. Hertz, director of Columbia's Center for Studies of Research Administration, careful design of all elements of research can be a strong factor in counteracting the current shortage of industrial research personnel.

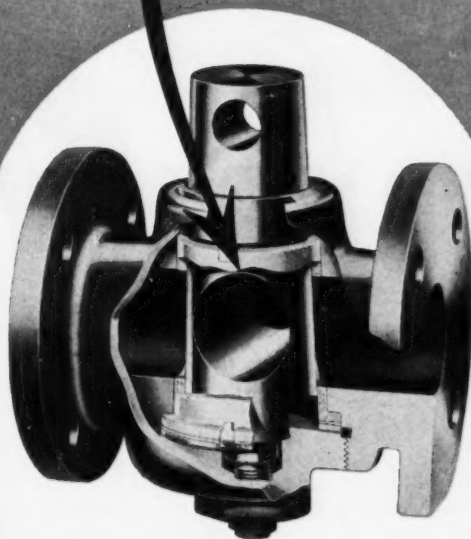
New Growth: Monsanto Chemical Co.'s Plastics Div. research facilities are now undergoing major expansion. A substantial part of the completed setup will be devoted to color research. Also in the works: surface coatings application laboratory, physics laboratory and an enlarged library.

Atoms and Industry: Research into industrial uses of nuclear science will receive a healthy boost when Stanford Research Institute's Radiation Engineering Laboratory goes into operation. Armed with a 5,000-curie source of gamma radiation, the new SRI lab will concern itself with the development and engineering of industrial radiation processes. Earmarked for early attention: radiographic testing of metal structures, cold-sterilization of foods and drugs. SRI will cooperate with firms interested in exploring the possible application of radiation to their specific problems.

Quick Thinking: A robot "brain" that can analyze trace samples of petroleum products in one-tenth the time required by ordinary methods is the news from Atlantic Refining Co. The device, a mass spectrometer linked to an electronic computer, is scheduled for final tests in the near future. If all goes according to plan, Atlantic will make the robot available for industry-wide use. Physical Research Laboratories and Consolidated Engineering Corp., both of Pasadena, Calif., played important roles in the development of the instrument.

Debut: B. F. Goodrich Chemical Co. has just taken the wraps off its newest resin. It's Geon 103-EP, has a lower molecular weight and can be processed at lower temperatures than straight Geon.

Why this valve never sticks in corrosive service



DURCO TYPE F VALVE

No metal-to-metal contact. The Teflon sleeve completely separates the plug from the body of the valve. This eliminates the need for any lubricant. The design which includes many other features desirable for corrosive service is discussed fully in Bulletin 647.

Write for free Bulletin 647



Standard Durco equipment solves specialized corrosion problems

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BOOKS

Industrial Heat Transfer, by F. W. Hutchinson. The Industrial Press, New York, N.Y.; x+326 pp., \$6.

Selective coverage of the field of heat transmission, with emphasis on those equations which are of the greatest practical importance. Graphical solutions are given at the end of each chapter for major equations presented.

The Merck Index of Chemicals and Drugs, sixth edition, Merck & Co., Inc., Rahway, N.J.; 1167 pp., \$7.50, regular edition; \$8, thumb-index edition.

Sixth edition contains 8,000 descriptions of individual substances listed under the heading, "Chemicals and Drugs," along with more than 2,000 structural formulas. Individual entries indicate chemical, popular, generic and trade names, properties, sources of substances, methods of preparation, uses, etc.

MEETINGS . . .

Chicago Intl. Trade Fair, Navy Pier, Chicago, Mar. 22-Apr. 6.

Natl. Sanitary Supply Assn., annual meeting, Conrad Hilton Hotel, Chicago, Mar. 23-26.

Amer. Chem. Soc., national meeting, Buffalo, Mar. 23-27; Milwaukee, Mar. 30-Apr. 2.

Packaging Machinery Mfrs. Inst., semi-annual meeting, Dennis Hotel, Atlantic City, Mar. 30-31.

Natl. Packaging Exp., Atlantic City Auditorium, Apr. 1-4.

Tech. Societies Council of N.Y., atmospheric pollution meeting, Statler Hotel, Keystone Room, N.Y., Apr. 4.

Natl. Agr. Chemicals Assn., spring meeting, Fairmont Hotel, San Francisco, Apr. 6-9.

Amer. Pharm. Manuf. Assn., annual meeting, Boca Raton Club, Boca Raton, Fla., Apr. 7-9.

Amer. Soc. of Lubrication Engineers, annual meeting & lubrication show, Statler Hotel, Cleveland, Apr. 7-9.

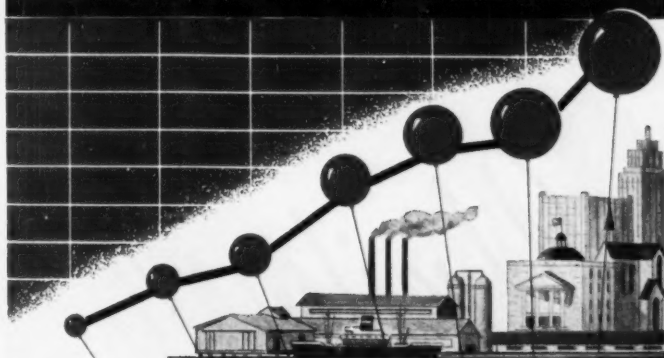
Amer. Zinc Inst., annual meeting, Statler Hotel, St. Louis, Apr. 21-22.

Assn. of Consulting Chemists & Chem. Engineers, general symposium, Belmont Plaza Hotel, N.Y., Apr. 22.

Amer. Oil Chemists' Soc., annual meeting, Shamrock Hotel, Houston, Apr. 28-30.

Amer. Drug Manuf. Assn., annual meeting, Homestead Hotel, Hot Springs, Va., Apr. 28-May 1.

INFLATION vs. FIRE PROTECTION



"Automatic" Sprinkler has the answer

Let's face it! Inflation is a continuing process in today's economy. It makes little difference to a property owner whether it is the result of planning, bungling or world unrest. The fact remains that higher and higher replacement costs make it more and more important for him to protect what he owns.

Insurance provides a large part of this protection and it's a sound business policy to keep insurance coverage up to value. But prices are moving upward too fast for insurance to keep pace day by day. Moreover such coverage often becomes an unbearable financial burden.

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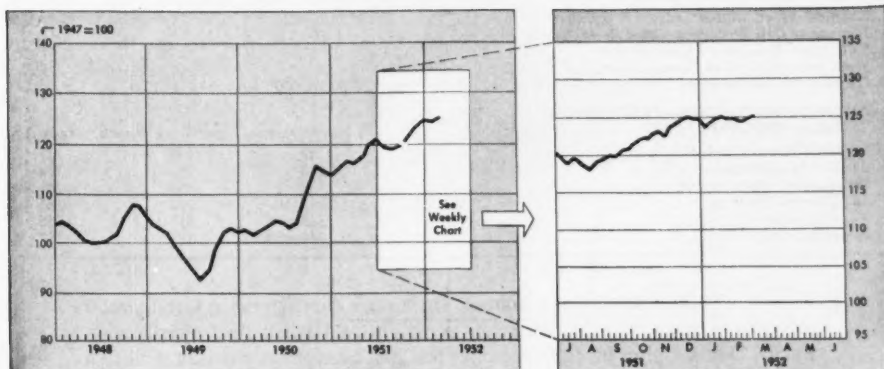
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MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries

MARKET LETTER

Just-relaxed controls on unbleached sulfate pulp are on a we'll-try-it-and-see basis until July 1. Though other grades of pulp remain subject to a 45-day supply limit, consumers of the unbleached type can now stock a 120-day supply, double that allowed before.

NPA will keep tabs on the result until July; if dislocations are minor, controls will doubtless ease further.

Sharp reductions in synthetic rubber needs for high-priced butadiene from alcohol have two causes, two effects. Causes: slowdown in synthetic rubber program, improved efficiency in butadiene-from-petroleum production.

Immediate effect is a price cut on GR-S from 26¢ to 23¢ a pound.

Longer-range result will be a further weakening in the none-too-robust solvents business, marked the week before by rollbacks in ester solvents based on ethanol, isopropanol, and butanol.

Antifreeze rather than solvents holds the attention of methanol producers, prime competitors of ethylene glycol makers for this 100 million-gallon-a-year business.

Both groups are optimistic about the coming '52-'53 season, are trying to get 110 million one-gallon cans this year. But that's 20% more than NPA is willing to allot.

Price declines set the tone for the market this week. The still dawdling textile industry was offered price concessions of 2-18¢ a pound for acetate filament. At least three major producers are involved, and the others are expected to follow suit.

A 1¢-a-pound reduction in Olin Industries' cellophane., effective this week, confirms the improved supply. (Olin's new Ecusta plant will reach capacity within sixty days.)

Another factor in the cut: Cellophane demand also feels the effect of the greater abundance of other films such as vinyls and polyethylene.

The fast-growing feed supplement business can get two special antibiotic products for less. Merck now quotes \$1 a pound on carload lots of procaine penicillin type, down from \$1.20. A combination with B-12 is 68¢ a pound in carloads, 10¢ less than before.

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
Chemical Week Output Index (1947=100)	125.6	125.4	118.3
Bituminous Coal Production (Daily average, 1000 tons)	1,650.0	1,715.0	1,680.0
Steel Ingot Production (thousand tons)	2,127.0	2,114.0	2,021.0
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	235.7	236.8	213.2
Chemical Process Industries Construction Awards—(Eng. News-Record)	\$8,316,000	\$1,538,000	\$29,808,000

MONTHLY INDICATORS—PRODUCTION (Index 1935-1939=100)

	Latest Month	Preceding Month	Year Ago
All Manufacturing and Mining	219	218	221
Durable Manufactures	280	281	268
Non-durable Manufactures	187	185	201
All Chemical Products	297	296	287
Industrial Chemicals	548	551	506
By-product Coke	184 (Est.)	185	187

There's no sign of a letup in antibiotics developments. Commercial solvents is pushing a combination penicillin-bacitracin feed supplement. Parke, Davis' Chloromycetin capacity has just been greatly enlarged with a new synthetic plant at Holland, Mich. Squibb is investing \$7 million for penicillin and streptomycin expansion.

Hydrazine for civilians will be considerably speeded by the new TB drugs based on hydrazides of isonicotinic acid (C&W, March 8). Though the new treatment requires further scrutiny, the drugs could eventually take a significant part of hydrazine output from Mathieson's a-building plant at Lake Charles, La.

The Ordnance Dept. originally had intended to take the entire amount, but because of the popular demand for the "cures," will share hydrazine supplies with drug makers when the plant comes in.

Larger allotments of metals to manufacturers of civilian durable goods should prove a boon to makers of chemicals that wind up there. Reasons for improvements in supply: higher output, defense program spread-out, more effective price policies on imports.

Civilians will now be able to get 60% of steel, 40% of aluminum and 40% of copper (in terms of base period consumption).

But plastics—frequently metal competitors—will scarcely feel the difference. They go into too many other products, as the Plastics Convention in Philadelphia pointed up. Tagged to grow: long-wearing, self-lubricated nylon plastic mechanism parts methacrylate lighting fixtures and skylights.

New molding machines now permit bigger one-piece moldings that could provide a healthy boost. One case: fabricated refrigerator liners—weighing over 7 lb.—now made of high-impact polystyrene.

Synthetic glycerine price came down to 33½¢ a pound in tankcars delivered. This matches the previously-decreased soap product price.

Reasons for softness: Storage tanks are full because of the 50% boost in synthetic production, reviving demand for soap and greater supplies of other polyols (e.g. sorbitol, pentaerythritol).

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending March 17, 1952

UP		Change	New Price			Change	New Price
Acetanilide, USP, Bbls.		\$.05	\$.61	Quicksilver, 76 lb. flask		\$5.00	\$215.00
DOWN							
Carnauba Wax, Ref. No. 1		.01	1.15	Sulfanilamidoquinioxaline		1.50	8.00
Glycerine, Synthetic, tank		.05	.33½				

All prices per pound unless quantity is stated



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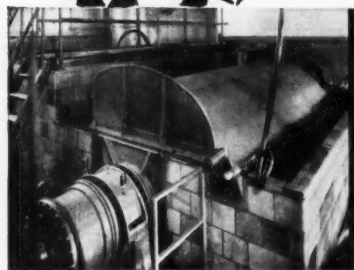
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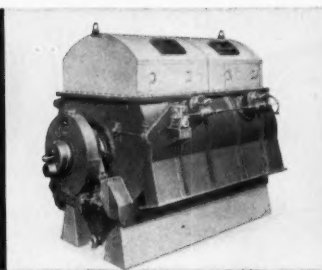


Don't let stubborn solids balk you!

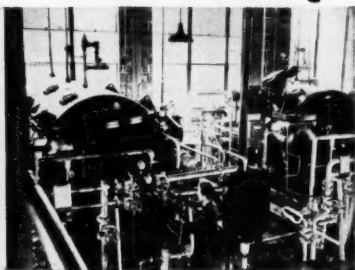
Don't let the pH scare you!



a.



b.



c.

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2. corroding characteristics.

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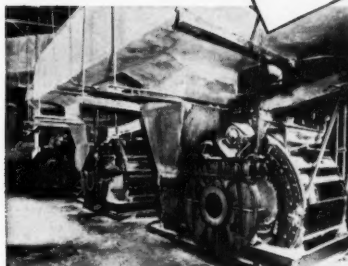
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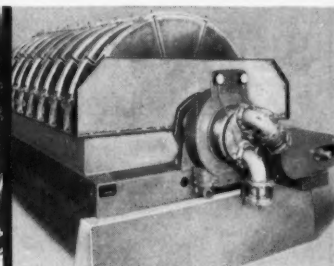
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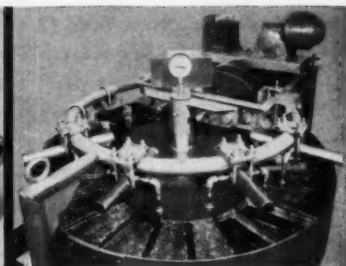
FILTERS



d.



e.



f.

- a. **RUBBER PROTECTED**—Oliver Pulp Filter—Handling White Paper Stock.
- b. **STAINLESS STEEL PROTECTED**—Oliver Precoat Filter—Handling Glycolic Acid.
- c. **RUBBER PROTECTED**—Oliver Pressure Precoat Filters—Handling Streptomycin.
- d. **NI-RESIST PROTECTED**—Oliver Top-Feed Filter—Handling Vacuum Pan Salt.
- e. **SILICON-BRONZE PROTECTED**—American Disc Filter—Handling Industrial Wastes.
- f. **NICKEL PROTECTED**—Oliver Horizontal Filter—Handling Hot Caustic Salt.

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MARKETS



VINYL MILLING: Bigger through thick and thin.

Still Bullish on Vinyls

Demand for polyvinyl plastics will climb 50% within next five years despite mounting competition from polyethylene and polystyrene.

Improved processing and merchandising will boost film and sheeting sales. But rigid vinyls will gain faster, represent a minimum 50 million lb.-per-year market by 1960.

Monomer supply will be ample: Leading producers are expanding output; Monsanto is broadening its vinyl position; and Diamond Alkali is entering the field.

Over one-third of the market for thermoplastics today is held by vinyl plastics. But there's keen competition ahead for vinyl producers and processors striving to hold that leading position.

Chief challengers are polystyrene and polyethylene both expanding fast to meet a growing demand for plastic sheeting and molded forms.

Annual capacity for vinyls* is better than 425 million pounds; polystyrene, 400 million. And polyethylene will be passing 150 million by the end of the year. Supplies of thermoplastics will be further boosted by the release of styrene from the synthetic rubber program, currently claiming more than half of the output of that monomer.

Vinyl chloride, of course, is not standing still either. Not only are leading producers expanding but new ones are coming in too: Monsanto will produce monomer at Texas City, and a joint venture with Shell at nearby

Deer Park will put Diamond Alkali in the vinyl business.

Nothing Daunted: But despite the likelihood of stepped-up jousting for sales, vinyl producers remain moderately bullish on future prospects. After living with and nurturing these products for almost 15 years, they are convinced that vinyls are hard to beat for versatility and economy.

Industry consensus is that the vinyls will grow nearly as fast in the next few years as they have in the past five, when sales doubled. That would put production by the end of 1955 at 620 million pounds for all types, including sheeting and film, extrusion and molding products, and all others.

However bright the long-range outlook may be, few will make predictions for the current year. For vinyl processors have rarely found the going smooth since they pushed their products into the large-volume class. Yet vinyls as a group have kept growing each year. In 1950, for example, business was under par for the first six months; after midyear, however, the influence of Korea pushed sales and customers' inventories to new highs.

* Vinyl chloride is far-and-away the most important, accounting for about 80% of all vinyls, as compared with vinyl acetate (10-15%) and the much smaller butyral, formal and polyvinyl alcohol.

MARKETS

The pattern was reversed last year: Sales boomed in the first half, then went into a six-months' skid. But the overall gains continued and the total was a new record output of about 425 million pounds.

If this rate of growth is to continue, vinyl people must develop new applications, improve processing and stress intelligent merchandising to keep products in fields where they are suitable. The latter was sometimes overlooked in the early years; in their zeal, a number of converters pushed vinyls—and other plastics as well—in to inherently unsuitable or, at best, premature applications. Much buyer resistance today, especially at the housewife's level, reflects some such previous disenchantment.

Newer Vintage: Among the new developments vinyl converters have ready for the coming battle with other plastics is a thinner, more uniform film. One leading producer can now turn out by an extrusion process a blown film only 0.5 mil in thickness.

Vinyl film can't match polyethylene for packaging frozen foods and fresh vegetables since the latter has near-ideal vapor transmission rates. But vinyl has the edge in other properties: higher tensile strength, transparency and economy. Hence it is the material of choice for non-food packaging, for such applications as shower curtains, plastic drapes, car tarpaulins, etc.

Producers are also working on improving the film's low-temperature flexibility to compete with polyethylene. Other processors will be making a stronger bid for the household upholstery trade with vinyls modified by copolymerizing with other monomers. Such sheets (over 10 mils thick) can be printed more satisfactorily, look better, are longer wearing.

Most heralded—and most likely to succeed soonest—of new vinyl forms is rigid polyvinyl chloride (PVC), now going into an increasing variety of fabricated shapes including piping, tanks and ducts. A number of moderately sized companies have already moved into the field (CW, Nov. 17, '51), more will doubtless join them.

Estimates of the ultimate future volume vary widely, but 50 million pounds yearly within 10 years is, if anything, conservative.

From Bottom Up: At least two other developments warrant notice. One is greater use of vinyls in floor tile. Tell-tale sign: Congoleum-Nairn has bought Delaware Floor Products, a pioneer in this field. And Armstrong Cork is reported to be more than casually interested in them.

Vinyl metal laminates are still in the pilot plant stage, but appear to have considerable promise. One vinyl producer and a metal company have been able to make laminated metal pipe and containers. The material—pipe or sheeting—can be produced rapidly, the laminate can be bent or fabricated without affecting the plastic-metal bond. Corrosion-resistant equipment so produced can be fabricated and installed more rapidly than plastic-lined metal equipment and pipes.

The potentialities of such developments have induced Bakelite and B. F. Goodrich, two of the biggest producers, as well as some of the smaller companies, to expand capacity. But other companies not in the field before think that a bigger role in vinyls fits in with their future operations.

Monsanto Chemical, mostly a buyer before, will be producing monomer at Texas City in conjunction with its scheduled acetylene manufacture. And the joint Diamond Alkali-Shell Chemical venture at Deer Park brings another into the business as a basic producer. The latter, moreover, can give present producers good cause for concern, for it may mean that other chlorine makers will be appraising vinyl chloride as a means of upgrading chlorine rather than selling it at present ceilings.

PICTURES IN THIS ISSUE:

Cover (top)—Harris & Ewing Photo; Cover (bottom) & p. 57—Jim Shepperd Photo; p. 26—Wide World Photo; p. 41—Natl. Bureau of Standards; p. 58—Air Force Photo; p. 59—(top-left) Lyn Crawford; (top-right) Aluminum Co. of America; (bottom-right) Standard Oil Co. (N. J.)

Government Needs

Bid Closing	Invitation No.	Quantity	Item
Navy Purchasing Office, 111 East 16th Street, New York City, N. Y.			
Apr. 4	457-B	24000 gal	Carbon tetrachloride
Apr. 7	449-B	90000 ea	Compound, toilet bowl cleaning
Mar. 25	52-1210B	50000 lbs	Soap, powder, hand scouring
		60000 lbs	Mechanics, spec. P-D-221A detergent, synthetic, spotting powder
		500000 cks	Soap, toilet, floating, white 6 oz. cake, spec. P-SAYOYA
Mar. 26	52-1229B	1952 ea	Plastic sheet, clear, 20" x 50"
	455-B	55000 gal	Alcohol ethyl
Mar. 27	437-B	43000 lbs	Compound, steam cleaning
	439-B	9400 gal	Acetone, technical grade
Mar. 28	448-B	211200 lbs	Acid, phosphoric
	438-B	5060 gal	Disinfectants
	450-B	70000 lbs	Calcium hypochlorite



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MALEIC MODIFIED ESTERS

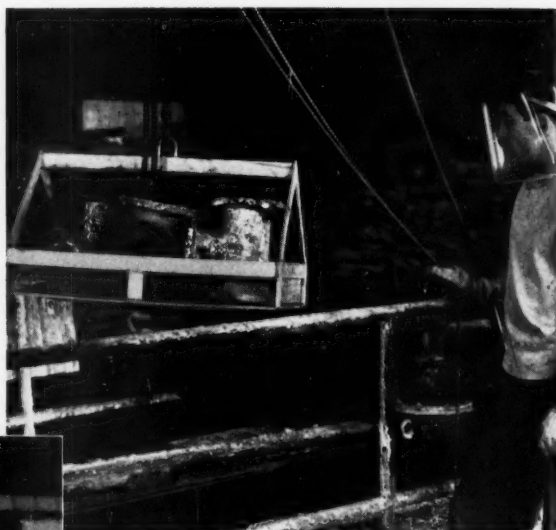
Crosby 1015, 1016,
1417, 1418

*All Pale Rosins and Resins Available in New Type Light Tare, Scrap Value, Aluminum Drums.

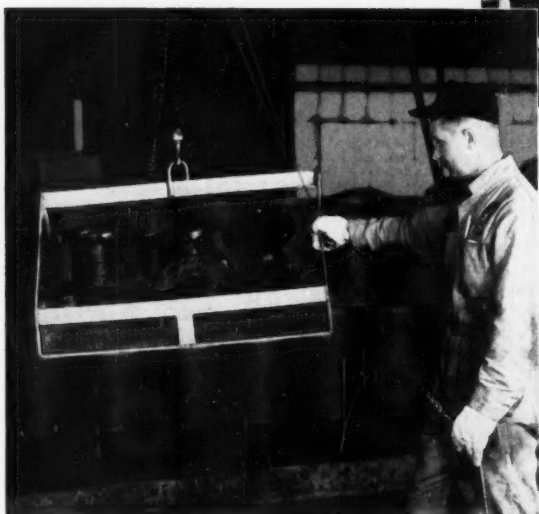
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Virgo Molten Cleaner may be used on any metal not seriously affected by molten caustic. The process is simple and inexpensive. Here are its main steps:

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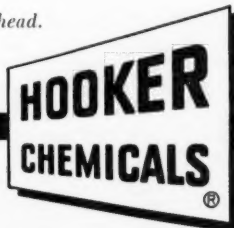
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DISTRIBUTION...

Insecticides Take Off

Wyandotte Chemical's new Industrial Insecticides Dept. marks coming of age of the alkali-chlorine producer's expansion and diversification.

New department will be as large as all other major departments, with possible exception of chlorine, when "feeling our way" stage is over.

Sales and service program will be strictly on industrial bulk basis, with advertising concentrated on direct mail to potential customers.

Creation of a new department to handle the manufacture, sales and service of Wyandotte's line of industrial insecticides is the latest result of the company's cycle of expansion since the war. As a producer of large-volume, low-profit alkali and chlorine, Wyandotte followed the majority of its fellows into the manufacture of insecticides as a means of upping profits from its chlorine (CW, Aug. 18, '51).

Under the leadership of its new



GERLACH: For bigger and better profits, a broader base.

president, Bob Semple, the company greatly diversified its product line, put more emphasis on research. Since by-products from the operation of the company's new glycol plant and its old stand-bys, chlorine and benzene, are used heavily in the production of insecticides, it was inevitable that they should be produced by the company. Result: the new department within the Michigan Alkali Division, slated to be as large as the other major departments of the company with the possible exception of chlorine.

Feeling Way: Charles F. Gerlach, brought from his job as vice president and general manager of Michigan Chemicals Corp. to head the new department, points out that the new unit is still feeling its way. Nevertheless Gerlach has a pretty fair picture of where it is going, how, and why.

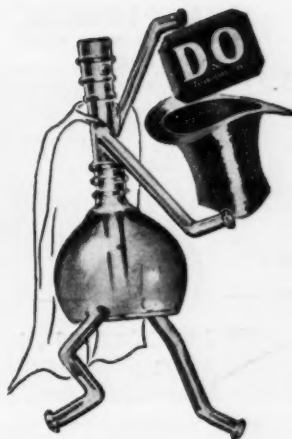
The department will handle DDT (technical grade and concentrates), BHC, emulsifiers, fumigants, and other of the company's insecticide products. By the first of June the company plans to be producing 300 tons of BHC and 130 tons of DDT per month. This will put the new department in a position to compete actively with other major producers.

Sales are being handled directly through Wyandotte's district and branch offices already located in most major cities. Whether or not the company will eventually sell retail direct to the consumer is problematical at this point, but in the foreseeable future at least the program is one of bulk distribution to formulators and manufacturers who will then resell to the consumer.

Logical Course: Setting up a special department to handle its industrial insecticides was Wyandotte's logical course. After many years of producing the basic raw materials for the manufacture of insecticides and selling them to other companies for manufacture into the finished material, it was only a matter of time before the step was taken.

Impetus for the move, however, has come as a result of the long-range rejuvenation with plans for greater diversification and better utilization of materials on hand. Actual setting in motion was the work of Michigan Alkali's Vice President Bert Cremers, and Director of Research Tom Vaughn.

Research Too: With production of alkali-chlorine alone, research is inclined to be neglected; but when insecticides, synthetic detergents, and



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DISTRIBUTION.....

other organics join the product line, research must toe the mark or the company will soon be out in the cold. Knowing this, Wyandotte is putting more and more emphasis on research.

The new department's research will be handled by the regular research department, which works for the entire company. Technical service will continue to be done through the branch sales offices as well as the technical service and development sections of the home office.

Advertising policy is still in the formative stage. A few ads have appeared in trade magazines and newspapers, but the main drive is concentrated on direct mail contacts with formulators and manufacturers.

Nylon Vendetta: Nylon, once a Du Pont trademark in the U.S., is now a generic term, but not so in Italy. There the fiber becomes "Nailon," a name owned by Montecatini, Italian chemical trust.

As a result the Italian firm has served notice on companies who import nylon to Italy that their products are subject to seizure. Whether the courts will uphold such seizure hasn't yet been determined, but the outcome should be of considerable interest to American exporters.

Drum Printing: Spurred by the increasing volume of Government orders, and all the printing of specifications they involve, Algene Marking Equipment Co. has come up with a

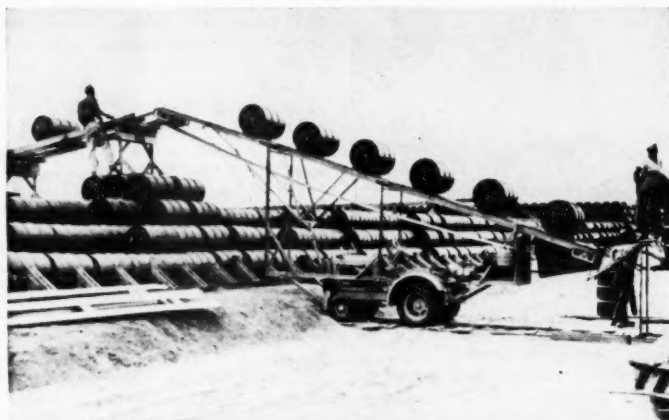
new automatic drum and bail printing press. Main feature: Printing is done at point of filling.

Seven Sellers: To handle recently increased production of Methocel (methyl-cellulose) Dow Chemical has made agreements with seven firms to handle sales of the material.

New distributors are: (West Coast) Braun-Knecht-Heiman, San Francisco; Braun Corp., Los Angeles; Van Waters & Rogers Co., Portland, Seattle, Spokane. (Midwest) Innis, Speiden & Co., Chicago; Merchants Chemical Co., Chicago, Cincinnati, Milwaukee; G. S. Robins & Co., St. Louis. (East) Innis, Speiden & Co., New York; J. J. Leidy & Co., Baltimore.

More Moving Abroad: Latest on the export subsidiary bandwagon is Hercules Powder Co. It has just formed two wholly owned export subsidiaries, Hercules Trading Corp. and Hercules Overseas Corp. The former will operate in the Western hemisphere, the latter everywhere else.

Now Equipment: A company that markets chemicals to West Coast industries and farmers, Pacific Coast Chemicals Co., is expanding its program to include sales and servicing of production equipment. As its initial step the company has secured exclusive rights as northern California agent for Morehouse Industries, Los Angeles, manufacturers of Speedline milling equipment.

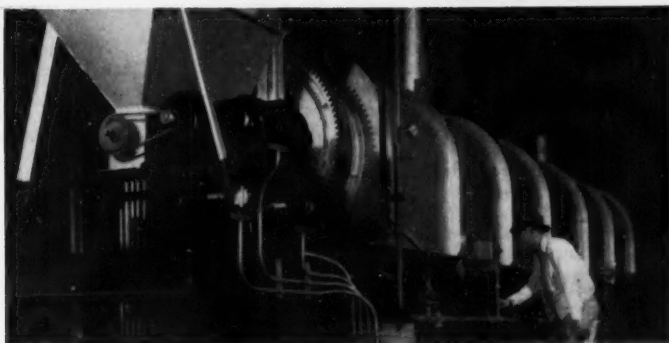


Portable Conveyor Eases Stacking

STREAMLINING WORK at Cheli Air Force Specialized Depot, Maywood, Calif., is this new portable conveyor rig transferring 55-gal. steel drums from truck bed to stack, and vice versa. Developed as part of the Air Materiel Command's work simplification program, the conveyor belt is mounted on a small tug, is easily adjusted to various heights, moves in both directions. Belt is fabric, rides on standard conveyor section, is powered by three hp electric motor.



EQUIPMENT: Easier in spots.



RAW MATERIALS: Without them, no chance to improvise.

Plant Man's Lament

CW survey reveals life has perked up for the production man, but raw materials, equipment are still headaches.

In the Southwest, chief worry is the threatened strike; there's a Far West oasis in the equipment-dry desert.

Another big headache all over the country: inability to set up hard-and-fast production schedules.

This week, in order to find out what's worrying production men, CHEMICAL WEEK queried representatives of chemical companies from coast to coast. Confined to men whose primary interests and responsibilities lie in the manufacturing end of the business, the survey includes foremen, section heads, engineers, plant managers and production v.p.'s. Most of the answers would surprise no one who has been keeping abreast of developments in the industry, but a few are eye-openers.

There were extremes in the survey, too. A vice president in the East, for example, says he has no production worries at this time. Raw materials—never much of a problem in his business—are ample, and labor supply poses no special problem. The company has finished its expansion program, at least for the time being, and he has no crying need for either additional plant space or new equipment. To top it all off, demand is at peak, full-scale production is warranted at all times. He intimates that he has never had it so good; the world, he says, is his oyster.

On the other extreme is the youthful Midwest plant manager who has problems on getting raw materials, equipment and labor. He finds it impossible to lay out a realistic production schedule and, as a result,

runs into trouble with the purchasing department and the salesmen. Says he: "Every morning when I wake up, I look in the mirror to see if my hair has turned gray over night."

In between these two views is the widespread agreement that, while still no bed of roses, life for the production man has perked up considerably in the last year. Delivery of equipment is slow, but a lot better than it was a year ago. And the supply of raw materials has showed a decided improvement.

Just which—equipment or raw materials—is the biggest headache is a question for dispute. But one plant manager, who has been plagued by both, says that his number one worry has been raw materials: "If I don't have a kettle or a pump or a piece of pipe that I need, at least I have a chance to improvise. But if I don't have the raw material, I have no choice but to cut back production."

Timely Worry: Surprisingly enough, few men claimed that they were seriously hurt by manpower shortage. Several reported they had trouble getting or training good operators, but, in general, labor seemed to be one of the secondary problems.

In the Southwest, however, production men are faced with a labor worry of a different type. All except



OIL WORKERS: Southwest's No. 1.

one of the men in the area admitted to sleepless nights because of the threatened strike of the Oil Workers International Union (CIO). The single exception was a vice president of an oil company whose refinery workers belong to a company union.

But many chemical companies that will not be affected directly by the strike figure the indirect effect will be just as bad. One v.p. of a company with three sulfuric acid plants in the area says that the refineries take the bulk of the output. He fears that if the strike materializes, the Southwest will witness the unusual sight of a market flooded with sulfuric acid.

Other companies depend on the refineries for raw materials. A synthetic rubber producer is unionized by the A. F. of L. but says that a CIO strike would interrupt its supply of butadiene and the plant would have to close.

Local Relief: CW's survey also uncovered a localized condition in Northern California. Here, however, the condition is not a problem, for production men report that equip-

ment is relatively easy to get. Equipment manufacturers verify this, report a seller's market. But even here some types of stainless steel equipment are almost impossible to get.

One reason for equipment makers' plight is that defense orders have not come into the area in any appreciable amount. During World War II, the bulk of the defense orders went to the electronic industry on the San Francisco Peninsula and to East Bay shipbuilders. The electronics industry is experiencing another defense-inspired boom but doesn't use enough equipment to keep the manufacturers busy. And shipbuilding, though increasing in activity, is still far from boom proportions. In any event, the equipment maker's poison is the production man's meat.

Red Tape, Too: Aside from the question of raw materials and equipment, the chief concern of the production man seems to be his inability to set definite plans for the future. One executive throws the whole thing in the hands of the Government with a rhetorical question: "When are they going to settle down?"

Cushioned on Glass

A group of Los Angeles vibration specialists saw a need for an improved material to control shock, vibration and acceleration effects. They formed Vibradamp Corp. for the purpose, sure that if they were successful, they would have something big. Apparently they do have, for Vibradamp is a fast-growing newcomer—even in the fast-growing process industry.

The need that was recognized from the beginning was for a material that would have stability over a wide range of temperatures, high fatigue life, low permanent set, and one which would not deteriorate. New developments—especially in ordnance—called for something with better characteristics than rubber, felt or cork, the materials currently used. Vibradamp engineers went to work on the project, developed a product, Vibraglass, fabricated from glass fibers.

Look at the Record: The enviable record that Vibradamp has posted since its formation two and a half years ago looks like this: From September '50 to February '51, production was only experimental. During that time, sales averaged a mere \$10,400 a month. That February it turned out 23,000 units. By May it was making 300,000 units a month, and sales during one month of '51 amounted to \$380,000.

In September, Vibradamp acquired a 56,000-sq.-ft. plant in Santa Clara.

"You can't plan accurately today," he says. "You don't know what's going to take place tomorrow. For example, according to NPA plans, this year's output of aluminum oxide would have to be enlarged. Our portion of that goal was set at 120,000 tons. We scheduled raw materials for that goal. At the rate we're going, we'll have to cut down to 60,000 tons because the market hasn't developed. We can't pull back on our commitments for raw materials. How are we supposed to plan?"

Another production man from a big, multi-product chemical company views a similar situation in a different light. As he sees it, our entire economy is still in a period of transition; and the chemical industry, being a growth industry, is particularly prone to day-to-day changes in planning. He thinks his job is an organizational one, and that he has to sell workers on the idea that the production operation is not rigid. He has to explain why they must rush on a product one month, cut back production the next. "Our job is to be flexible," he says; "my problem is how."

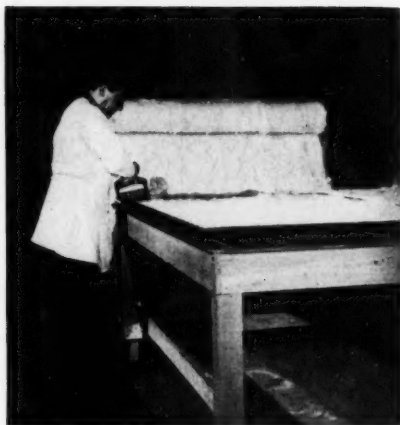
Then in December, Glass Fibers, the second largest glass fiber corporation in the country, bought a 51% interest in the firm. Currently operating with a comfortable backlog of orders, the company expects further expansion of production facilities in the near future.

Mainly for Defense: Vibradamp's chief production items to date have been pressure pads, vibration isolators and liners for carrying cases and shipping containers. The pressure pads have been used in solid fuel artillery rockets and special AEC assemblies to maintain desired pressures, to compensate for differential thermal expansion and tolerance build-ups, and to protect against acceleration and shock.

Major civilian applications at present are insulators for forced air furnaces, mounting for fractional horsepower motors, and machine tool mountings to isolate vibrations.

Vibradamp also has done considerable development work for air conditioning and refrigeration concerns. Gaskets of various types, shipping containers, battery separators—even upholstery—are among the civilian uses being developed.

More to be Done: Vibradamp engineers have partially solved the two problems that stymied efforts of previous workers: the abrasive characteristics of glass-on-glass and the tendency of binders to harden at the inter-



GLASS FIBERS, received in rolls, are cut into mats of desired size.



HEAT TREATMENT unites laminations, sets density, disperses binder.

sections, making brittle joints. And quality control at all stages and 100% inspection of finished goods have given the company a low rejection record.

Yet there are still many problems to be solved. Further research is necessary to reduce breakdown through interior abrasion of the fibers. Vibraglass cannot compete with rubber in shear, nor with felt in tearing strength. But company officials, confident in the ability of their engineers, are sure these will be worked out.

Moreover, they figure that the merger with Glass Fibers should prove helpful. Although Vibradamp still retains its individuality as a separate corporation (with Glass Fibers the principal stockholder), the know-how and sales outlets of the latter should make things easier for Vibradamp.

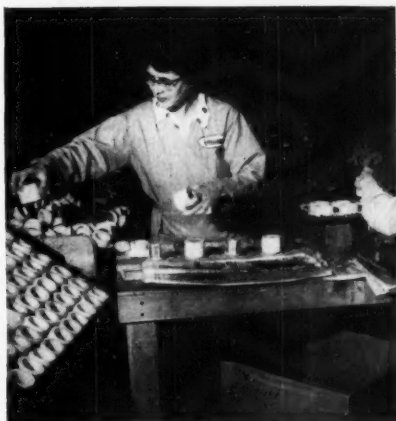
With expanded production and im-



MATS are combined with attention to fiber orientation, then weighed.

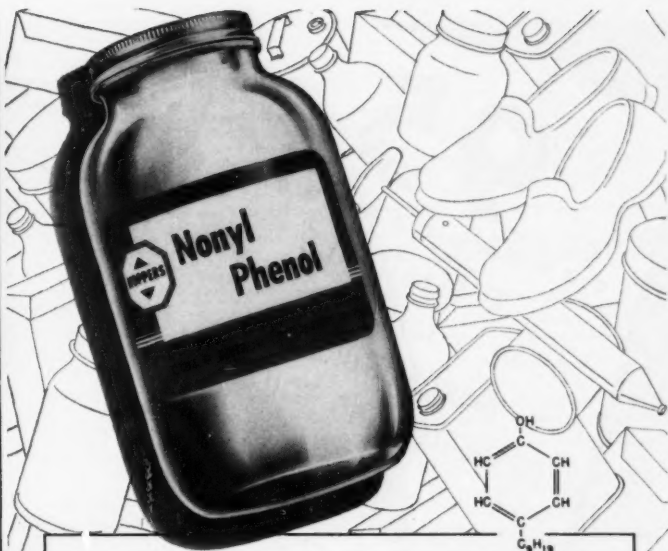


FABRICATION complete, each part is sent through load deflection test.



FINAL STEP for some products is gluing separate layers together.

March 22, 1952 • Chemical Week



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Two of the three normally reactive nuclear positions are unsubstituted in this alkylated phenol; they are

subject to such reactions as acylation, and condensation with aldehydes. It is a mixture of monononyl phenols, predominantly substituted in the para-position.

The unhindered phenolic hydroxyl group undergoes such reactions as etherification, esterification, vinylation, ethylene oxide condensation, and formation of nonyl-phenoxyacetic acid.

PROPERTIES

Boiling Range.....	290° — 300°C.
Hydroxyl Number (theory 255).....	250
Specific Gravity, 30°C.....	.940—.944
Refractive Index, 20°C.....	1.5118

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CHEMICAL WEEK

One of a series of advertisements prepared by THE ASSOCIATED BUSINESS PUBLICATIONS



PRODUCTION...

proved methods, costs have already been pared by 100%-300% (depending on the particular item), so that prices are now competitive with felt, cork and rubber in most cases, considerably lower in a few. Further reductions may well be in order when the company, busy 'til now with defense demands, launches a full-scale assault on the civilian market.

EQUIPMENT....

Liquid Feeding Unit: The Bird-Archer Co. has brought out a new packaged unit for metering liquids under pressure. This unit is applicable for feeding boiler water treatment materials as well as other processing involving fluid delivery. Controlled, high-pressure feed at low cost is said to be the aim of this self-contained, extra-heavy unit.

Micro Flowmeters: Technical Equipment Co. of Emeryville, Calif., is introducing a new series of micro rotameters for use in laboratory and small pilot operations. Two models are available; the high-pressure at 1,000 psig, and the low-pressure at 100 psig. Both models have maximum flow rates of 6-105 ml/min for water and 90-610 ml/min for air at 20 C. The low-pressure model uses neoprene gaskets while neoprene or Teflon gaskets can be used with the high-pressure unit. This, plus the use of floats made of plastic, aluminum, stainless steel and gold in stock items along with brass and stainless steel (303 and 316) make the meters suitable for handling corrosive fluids.

Pulverizing Mill: In extending its line of mills, Mead Mill is introducing a mobile model having an output of 50-100 lbs. an hour. It is said to pulverize any dry, grindable material without damaging molecular structure.

Packaged Safety: Pre-engineered fire extinguisher systems—made and sold by Walter Kidde for yachts and motor boats—are now available for industrial plants. Kidde says the new "packaged units" will fill the bill as a protection against normal industrial types of flammable liquids, but that custom-engineered installations will still be required in cases where hydrogen, carbon bisulfide, butane and propane are stored. The systems have been approved by the Underwriters' Laboratories, come in six sizes. Smallest will protect units occupying less than 800 cu. ft.; the largest units will take up between 4,050 and 6,000 cu. ft.

Chemical Week • March 22, 1952

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EQUIPMENT — used — surplus

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jkt'd & agtd. Chemical & Process Machinery
Corp., 146 Grand St., New York 13, N.Y.

Calenders, New Rubber Calenders, 6x12", John-
son joints, 7½ HP motor, Complete. Eagle
Industries, 110 Washington St., NYC.

Centrifugal, 36"x40", Bird, Continuous, Consoli-
dated Products, 18 Park Row, N.Y. 38, N.Y.

Centrifugals, Bird Rubber Covered, First Machi-
nery Corp., 157 Hudson St., N.Y. 13, N.Y.

Centrifugals 40" Evaporator. First Machinery
Corp., 157 Hudson St., New York 13.

Condensers, Coil, St. St., 40 sq. ft. Perry Equip.,
1415 N. 6th St., Phila. 22, Pa.

Crystallizers, Swenson Jkt'd. First Machinery
Corp., 157 Hudson St., New York 13.

Decanter, Sharples Super-D, 1/2 type 316, w/10
HP XP Motor. Chemical & Process Machinery
Corp., 146 Grand St., New York 13, N.Y.

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Dryer, Vacuum Shelf, 44"x44" shelves, MD
pumps, complete. Eagle Industries, 110 Wash-
ington St., NYC.

Dryers, Stainless Drum 5"x10". First Machinery
Corp., 157 Hudson St., N.Y. 13, N.Y.

Evaporators, Multiple Effect. First Machinery
Corp., 157 Hudson St., N.Y. 13, N.Y.

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ested call or write Husky Oil Company attention
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telephone Cody, Wyoming, 500.

Filter, Klein stainless steel 100 sq. ft. Chemical
& Process Machinery Corp., 146 Grand Street,
New York 13, New York.

Filter, Sweetland #8, 29 leaves. Perry Equip.
1415 N. 6th St., Phila. 22, Pa.

Filter Press, 24"x24" aluminum, 24 chambers,
Consolidated Prods., 18 Park Row, N. Y. 38.

Filter Press, 30"x30", Iron, Sperry, steam
heated. 30 chambers, Consolidated Products,
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Filter Presses, all sizes and types. Process In-
dustries, 305 Powell St., Brooklyn 12, N.Y.

Kettle, Reaction, 12 gal. Inconel, Jkt'd. & Agit.
Perry Equip., 1415 N. 6th St., Phila. 22.

Mill, Ball Hardings 4½"x2". Perry Equipment
Co., 1415 N. 6th St., Phila. 22, Pa.

Mill, New Rubber Mills, 6x12, 6x14, 6x16";
Johnson Joints, Complete. Eagle Industries, 110
Washington St., N.Y.C.

Mixer, Lab BP Vacuum, 7½ gal, Jkt'd, MD, Com-
plete. Eagle Industries, 110 Washington St., NY.

Mixer, 110 gal. stainless Patterson Vacuum,
Consolidated Prods., 18 Park Row, N.Y. 38.

Mixer, 200 gallon B.P. Jacketed, m.d., Con-
solidated Products, 18 Park Row, N.Y. 38.

Pebble Mills; 8"x8", Porcelain lined. First Machi-
nery Corp., 157 Hudson St., N.Y. 13, N.Y.

Pulverizer, Raymond High Side 5 roll. Consoli-
dated Products, 18 Park Row, N.Y. 38, N.Y.

Reactors—2 New Steel 350 gal. cap. agtd.
Equip. Clearing House, 289—10 St., Bklyn. 15.

Receivers—New Steel Vacuum 350 & 135 gals.
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Tablet Press, Stokes DD2, 23 punch, Consoli-
dated Products, 18 Park Row, N.Y. 38, N.Y.

Tank, Aluminum, 43,400 gal. New. Perry Equip.
Co., 1415 N. 6th St., Phila. 22, Pa.

Tank, New 20,000 Gal. Cap. 5/16 Steel 6 avail-
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Tank, 5/5, 3,000 gal. for truck. Perry Equip-
ment, 1415 N. 6th St., Phila. 22, Pa.

Tank, 5700 gal., 5/5, Horiz., New. Perry Equip.,
1415 N. 6th St., Phila. 22, Pa.

Tanks, 6500 gal. capacity, steel storage, re-
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Church St., N.Y. 7, N.Y.

Tanks (2) St. St., 16,000 gal. Vert. New. Perry
Equip. Co., 1415 N. 6th St., Phila. 22.

Tanks, 55, from 180-10000 gal, jkt'd. storage,
agtd. Eagle Industries, 110 Washington St., NYC.

Tanks, 5.5. Storage & Mixing, all capacities.
Process Industries, 305 Powell St., B'klyn 12.

Tower Fractionating 24"x51", First Machinery
Corp., 157 Hudson St., N. Y. 13.

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BOOKLETS

Chemicals

Tar Base Coatings

8-p. bulletin on cold applied tar base coatings, a black paint developed from coal tar pitch and manufactured solely for surface protection purposes. Several of firm's coatings are described, and application directions are given for each. Pittsburgh Coke & Chemical Co., Grant Bldg., Pittsburgh, Pa.

Liquid Stabilizer

Technical service report giving data on characteristics and typical properties of "Stabilizer No. 80," a liquid stabilizer intended for polyvinyl chloride resins. Witco Chemical Co., 295 Madison Ave., New York, N. Y.

Silicone Release Agents

5-p. data sheets containing data on three silicone release agents to be used for the sand-resin shell process of metal casting. Dow Corning Corp., Midland, Mich.

Paper Coating Formulations

Technical data bulletin detailing properties and use of "Latex 512-K" paper coating formulations for size press equipment. The Dow Chemical Co., Midland, Mich.

Reinecke Salt

2-p. bulletin covering method of prepara-

tion, uses, properties and price of Reinecke salt, a reagent utilized in the separation of amino acids and identification of organic bases and amines. Jasonols Chemical Corp., 1085-87 Myrtle Ave., Brooklyn, N. Y.

Equipment

Molybdenum Disulfide

Brochure giving application information on molybdenum disulfide as an aid in the assembly of closely fitting parts, as a lubricant in hot and cold working and forming of metals, as a dielectric lubricant and as a lubricant for parts functioning at low and high temperatures. Fields covered include aircraft, automobiles, bearings, light industry, power and electrical industry, etc. Climax Molybdenum Co., 500 Fifth Ave., New York, N. Y.

Water and Steam Valves

8-p. bulletin illustrating and describing main features of the firm's line of automatic water and steam valves such as float valves, altitude valves, check valves, reducing valves, etc. Golden Anderson Valve Specialty Co., 2100 Keenan Bldg., Pittsburgh, Pa.

pH Control

6-p. folder concerned with the practical application of the principle of pH control to cleaning problems in the petro-

leum industry such as cleaning of fuel oil or storage tanks, reconditioning of oil tools, descaling of heat exchangers, etc. Kelite Products, Inc., 1250 North Main St., Los Angeles, Cal.

Gyratory Sifter

8-p. booklet covering the design, specifications and application of gyratory sifter designed to separate from two to eight material sizes in one sifting operation. Allis-Chalmers Mfg. Co., 1150 South 70th St., Milwaukee, Wis.

Grinding Medium

4-p. bulletin featuring "Burundum," tubular shaped, non-metallic, ceramic bodies to be used as grinding media in both wet and dry grinding processes. Reviewed here are physical properties, comparison data with other grinding material, usage details, and results of a number of field tests. The U.S. Stoneware Co., Akron, Ohio.

Air Conditioning Cabinets

40-p. bulletin describing new model air conditioning cabinets, central units to be used in various functions of air conditioning, such as simple cooling, summer cooling and humidifying, and continuous air cleaning. For aiding in the selection of particular type units, there are included capacity tables, diagrams, charts and detail photos. Buffalo Forge Co., Buffalo, N. Y.

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